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ABSTRACT

This report consists of papers delivered at the 1971 meeting of educators sponsored by the Unesco Institute for Education. The purpose of the meeting was to assess comparative education in the context of the trend towards empiricism and borrowing from the social sciences. The report is divided into the following sections: (1) General Problems of Scientific Method; (2) Some Theoretical Methods for Comparative Education; (3) Research and Research Methods in Comparative Education Challenge and Response; (4) Reports of Working Groups on Education, Psychology and Sociology, and Comparative Research on Politics and Education; and (5) International Co-operation in Comparative Education Research. Included in the appendixes are the working paper of the conference, a list of participants, a list of submitted papers, and a select bibliography. (Author/RM)

International Studies in Education

26. *Current Problems of Teacher Education*
Alfred Yates. 1970. 192p. 2nd edition 1972.

27. *Languages and the Young School Child*
H.H. Stern. 1969. 270p.

L'enseignement des langues et l'écolier
H.H. Stern (translation by William F. Mackey). 1971. 254p.

28. *Correspondence Courses for In-service Teacher Training at Primary Level in Developing Countries*
Renée Erdos and John H. Clark. 1971. 56p.

Cours par correspondance pour la formation d'enseignants en cours d'exercice au niveau primaire dans les pays en voie de développement
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2 volumes, I 296p, II 286p.
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31. *Bildungsberatung – Perspektiven ihrer Entwicklung in der Bundesrepublik Deutschland*
Kurt Aurin, Peter Gaude and Kurt Zimmermann. 1973. 196p.
(Co-publication with Diesterweg, Frankfurt/Main)

32. *Lerngruppen und Differenzierung*
Alfred Yates. Translation of *Grouping in Education* (Almqvist & Wiksell/John Wiley, 1966) by Kurt Opitz. 1972. 350p.
(Co-publication with Beltz, Weinheim)

33. *Relevant Methods in Comparative Education*
Edited by Reginald Edwards, Brian Holmes and John Van de Graaff 1973.

34. *Youth and the Changing Secondary School*
Richard D'Aeth. 1973. 72p.

International Studies in Education 33

RELEVANT METHODS IN COMPARATIVE EDUCATION

Report of a Meeting of International Experts

edited by

Reginald Edwards, Brian Holmes and John Van de Graaff

1973

UNESCO INSTITUTE FOR EDUCATION, HAMBURG

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Foreword

The Unesco Institute for Education has by now an established tradition of support for comparative education. It has sponsored expert meetings in the field at eight-year intervals, in 1955, 1963 and most recently in 1971. Each meeting can be seen as representing a characteristic stage of development of comparative education as a discipline. In 1955, such now classical figures were present as Friedrich Schneider, Pedro Roselló and Nicholas Hans (not to speak of some other younger ones who were active in subsequent meetings). Discussion covered mainly philosophical, historical and melioristic approaches to comparative education, with the ultimate aim of the field seen as a practical one: to provide assistance in the formulation of educational policy.

The 1963 meeting which was held on the initiative of the late Saul Robinsohn, then Director of the Institute, was attended by numerous new faces in addition to some of those who participated in the previous meeting. The meeting focussed on the identification and classification of contextual data in comparative education, an indication that the field was striving to become more systematic in approach. This is also evident from the tasks assigned to the three working groups: description of educational systems in their social context, causal explanation of educational development and interdisciplinary co-operation. The report of the latter group, drawing partly on the IEA mathematics study then underway, pointed clearly in the direction of greater empiricism and use of methods and techniques from the social sciences - a path which in fact has since been taken by a substantial number of comparative educators.

Therefore, the 1971 meeting, reported in this volume, undertook to assess the situation of comparative education in the context of the trend towards empiricism and borrowing from the social sciences. Preparation began in 1970, after the Governing Board of the Unesco Institute gave its approval at its meeting that year. Brian Holmes, who was to serve as chairman, provided an initial working paper, and a considerable number of other experts were consulted. On the basis of their advice the working paper (included in this volume as an appendix) was extensively revised before reaching its final form in March 1971.

Numerous problems were grappled with in the long and complex process of organising the meeting and preparing this report. Space permits discussing only a few of them here. In selecting the participants, the Unesco Institute tried to strike a balance between the inclusion of those firmly rooted in comparative education *per se*, and those more oriented towards one of the social science disciplines. In the end, however, it was more successful in attracting the former than the latter, and thus the input from the other disciplines was not as strong as it might have been.

A related problem came to a head in organising the working groups as a sizeable number of participants argued that a basic aim of the meeting must be to discuss education as a discipline in itself, without any restriction to concepts and techniques from the social sciences. Significantly, however, the working group formed to focus on this concern did in fact devote a good portion of its report to factors external to the educational process itself.

A final difficulty in planning the meeting involved determining the relative emphasis to be given to the discussion of substantive topics relative to methodology *per se*. From the outset it was planned to discuss methods in close conjunction with specific topics, and the working paper proposed an input-output framework together with a topical focus on the content of education (curriculum in a broad sense) as an essential aspect

of the educational process. In actuality, as the reader will note, the papers and discussions ranged well beyond even these broad limits.

A word about the selection of papers for inclusion in this volume from among those submitted to the meeting: the choice was made collectively by the editors, bearing in mind various criteria but with the basic aim of keeping the overall length within reasonable limits.

Warm thanks are due to the three editors, Professor Reginald Edwards, Dr. Brian Holmes and Dr. John Van de Graaff and to the consultants who advised on the preparation of the meeting as well as to the participants themselves who contributed decisively to the spirited and committed character of the discussions.

Tetsuya Kobayashi

Director, Unesco Institute for Education 1968-1972

General Introduction

Brian Holmes

Two main questions gave focus to the work of the expert meeting convened by the Unesco Institute for Education, Hamburg, in March 1963. The first was how data relevant to comparative education studies could be identified and brought into meaningful order. The conference devoted a great deal of time to devising classificatory schemes for educational systems in their social settings, which would make it possible to establish patterns of cross-culturally meaningful variables. The second question turned on causal explanations. Historical and present-day causes were contrasted and the possibilities of planning the outcomes of educational practice were discussed. The conference report *Relevant Data in Comparative Education* (1963, out of print) provided guidelines on the basis of which taxonomies could be developed.

The theme of the Institute's conference in September 1971 should be seen as logically connected with the earlier meeting. On this occasion a good deal of common ground was assumed. The aims of comparative education have been widely debated and are generally accepted. The volume of systematically collected data has grown considerably as a result of the work of international agencies. As major cross-national analytical studies have multiplied during the 1960s, a self-conscious interest among comparative educationists in methods of enquiry has developed. Several general textbooks were published directing attention to the problems and possibilities of making comparative studies more "scientific". These books and innumerable articles placed the older dichotomy between the historical and statistical traditions in a new perspective and sharpened debates about the constituents of "scientific method".

With these developments in mind the organisers considered the time was ripe for an expert meeting at which relevant methods in comparative education would serve as a theme. It was assumed that there was sufficient common ground between participants to ensure that discussions of somewhat abstract themes would be fruitful. Discussions were based upon a preliminary working paper circulated to members prior to the meeting for comment, and on the papers received in response. From these, three broad themes emerged:

1. The first turned on the general characteristics of scientific methods and their implications in social science enquiries.
2. A second cluster of questions related to the use of theory and theoretical models in comparative education.
3. Finally, specific methods and techniques in comparative education were discussed.

These three issues in comparative education - scientific method, theory- and model-building, and techniques of enquiry - can be discussed from several standpoints. First, of course, running through all themes are a number of philosophical assumptions. The recent spate of writing on the philosophy of science testifies to the extent to which these are at present vigorously debated. They pose problems of methodology which, transcending those of any one discipline, are common to groups of disciplines or even (in a more generalised form) to all scientific enquiry. A fundamental question is whether there is a unity of method among the natural and social sciences. If so, what are its characteristics? What relationships exist between conceptual analysis and experimental and non-experimental empirical enquiry in science?

This question of unity raises the issue of procedures appropriate to empiricism. Two alternative approaches are represented by the theories of induction and hypothetico-deduction. Inductive enquiry begins with the collection, careful organisation and categorisation of data and then proceeds to the building of theory. The hypothetico-deductive method is more tentative, depending upon the formulation of "non-logical" hypotheses which are then

tested in a specific context. Another general issue relates to the objectivity or subjectivity of data or facts and methods of observing and measuring them. Induction assumes facts are objective, The hypothetico-deductive method asserts that measurement presupposes theory. Both sets of assumptions have informed comparative education enquiry, but there has been a shift from "pure" induction to forms of hypothetico-deductive enquiry.

Arising from these general problems are others which have particular relevance to groups of disciplines. Problems of method faced by social scientists differ from those of natural scientists in that the data with which the former deal are less amenable to quantitative measurement and in that controlled experiments are technically difficult to perform and morally questionable at best. Groups of social scientists have succeeded in establishing measures which permit experimental empirical research. Moreover, economists, psychologists, sociologists and political scientists respectively face special problems by virtue of the kinds of data of interest to them. The organisers of the meeting considered that working groups established along the lines of the disciplines which contribute to comparative education research would facilitate in-depth discussions of some general methodological issues.

It is apparent, however, that the data of education and its processes can be studied as such using the particular methods and expertise of educationists. Of relevance here are historical data, ideological profiles and statistics directly related to educational provision.

Of the three working groups formed, two dealt with social scientific approaches (those of political science and sociology-psychology respectively) and the third was based on the view that educational studies had unique characteristics.

No-one at the meeting wished to draw sharp distinctions between philosophical and empirical enquiries. Some participants stressed that the empiricist needed to survey with a sceptical and critical eye the reliability of his results and the validity of his conclusions. For example, hypotheses claiming validity for

large sections of the world cannot be based on limited studies done under special conditions. On the one hand, it was asserted that few important cross-national studies require philosophical clarification before empirical work can be attempted and, on the other hand, that the need for prior philosophical analysis applies as much to national as to cross-national studies. These views were not accepted by all.

Differences of emphasis are reflected in research models in comparative education. Since 1960 several marked trends of development can be discerned. There has been, for example, a transfer of attention from descriptive studies of national systems to analyses of problems, and from belief in universal solutions to the testing of alternatives. There has been a movement away from the search for historical factors or the antecedent causes of contemporary events to an interdisciplinary endeavour to explain and predict behaviour and institutional change related to choices among alternatives. These trends reflect not so much a shift of emphasis away from identification and description but rather an increase of interest in the role these play in explanation and in the kinds of explanation which are held to be important in the social sciences. Do these trends imply that a comparative educationist can, in a sense, be only one kind of social scientist - an economist or sociologist, for example, trained to provide explanations appropriate to his discipline? Or has he a distinct contribution to make as an educationist with special expertise and skills?

In the meeting, a case for the comparative educationist as a generalist was based on the argument that he should be able to grasp the significance of the contributory disciplines to education without necessarily being an expert in more than one field. According to this view the comparative educationist has to occupy the "middle ground" from which he can survey the total scene. It was a position shared by many participants who regarded themselves primarily as educationists with particular expertise. These suggestions raise fundamental questions concerning the appropriate content of educational studies, and whether comparative educatio-

nists possess unique models and techniques of research.

In the event the relative value of the social science expert and the generalist in comparative education has been determined far less by theoretical considerations than by the politics of educational planning. The politically influential research workers have been drawn from among economists in international and national planning agencies and sociologists and psychologists who have provided evidence to support political decisions, e.g. to introduce comprehensive secondary schools. Their success has been to persuade or to give support to politicians to follow policies based on crude generalisations or ideology. For example, economists persuaded governments that investment in universal primary education would increase productivity. This claim was analogous to the hope of UNESCO's founders that education would raise standards of living in the aftermath of war. Economists thus gave support to policies of educational expansion which gathered momentum in the late fifties and sixties. Today, however, over-simplified economic arguments encounter much scepticism.

What happens more often than not is that, faced with an educational problem, statesmen and educationists turn to other countries not for educational theories, but for practices which can be borrowed and adapted. Certainly, it is difficult to deny that European educational structures and methods of schooling have been adopted by more and more societies, and in some cases enthusiastically supported and used by the people. The schools, apparently so alien, seem *at least for some youngsters* to fit in quickly with other institutions of the host society. The new schools are soon no longer foreign but become variants of the familiar prototypes.

The outcomes of such adoption are not easily foreseen. One participant at the meeting wished to draw a distinction between forms of adaptation in which the new institution is absorbed into the host system in such a way that no change occurs, and those adaptations where a transplanted institution does not function in the new environment in accordance with the explicit objectives

set for it in the society from which it was borrowed. Rarely does it happen that institutions are transferred on the basis of careful comparative research. The reasons are political or economic. In the early post-war period the demand for education as a human right received considerable political support at the international and national levels. Later, economic arguments were advanced in favour of expansion. But the processes of adoption and adaptation depend far more on cultural forces, including deep-seated "residues", than on rational analysis. Residues frequently cause people to resist the transfer of the analytical or conceptual constructs essential to the functioning of a particular institution. Thus a comprehensive school or features of a curriculum may be copied from another country, but unless the cultural context into which the innovation is introduced is very similar to the one from which it was borrowed the outcomes will be very different. The pioneers of comparative education recognised this problem, and their successors, whether in universities or in international organisations, have also been looking for methods of enquiry which will enable institutional transfers to be soundly planned and successfully implemented.

It is evident, for example, that many transplanted institutions only "survive". Frequently they are transformed by the host environment. Often borrowing gives rise to problems which are neither desired nor anticipated. For this reason the practical problems of educational reform remain obstinately difficult to solve. Members of the meeting showed a lively interest in these perennial issues and were aware that a central task for comparative educationists remains that of divising methods of enquiry which will make it possible to understand these processes better and to improve the quality of planned educational change.

Since the interest of educationists is practical as well as theoretical, some methodological issues have greater affinity with problems relating to the applied sciences than with those which perplex philosophers of the pure sciences. The applied scientist may well be impatient when questions of method are

raised. The pure researcher, to be sure, may not easily be able to explain his processes of thought and action nor be very aware of them. Yet there is sometimes a need in any scientific endeavour for its practitioners to stand back and review their methods in the hope of refining them. The Hamburg conference provided a forum for such discussions. Problems of methodology which transcend disciplinary boundaries are bound to be inconclusive. They are common to all forms of enquiry, and answers to them depend on general theoretical assumptions. Questions relevant to a group of disciplines or to one discipline are more amenable. It was encouraging to observe at the conference that there was more agreement regarding comparative education methods than might have been expected and certainly greater acceptance of different positions than had previously been the case. Perhaps it is because there is now a recognised, steadily growing body of literature and data in comparative education showing that many researchers are making a contribution to an identifiable field of enquiry which, in spite of its interdisciplinary character, has unique features.

Some interests of comparative educationists imply that comparative education should be viewed as a generalising theoretical science; other concerns suggest that it should be regarded as an applied science. As the former, comparative education's task would be to postulate general policy statements (usually alternatives) which would be tested in order to eliminate untenable propositions. From this viewpoint the comparative educationist should seek to confirm or refute widely-held theories about education by testing them comparatively, or to establish general correlations between certain aspects of education and some other features of society, e.g. between the structure of education and social class structure or between investment in education and per capita income.

The aim of an applied science, in contrast, is to assess the relevance of tested theories and measures for practical circum-

stances. In particular this meets the demand of administrative reformers for information on the relative merits of practical policies. Hence the need for case studies in comparative education in which predictions made from general statements can be tested under specified initial conditions. Recognition of the similarities and differences which exist between generalising and applied sciences would help to remove some of the ambiguities of discussion among comparative educationists.

A second issue among comparative educationists is whether methods employed in the natural and social sciences, including history, are the same. Opinions differ, but followers of Popper, of whom there are several in comparative education, would argue in favour of a unity of method. If this position is accepted,it is evident that distinctions should be drawn between social and physical "facts" or data; between the kinds of hypotheses proposed; between the operationalisation of appropriate concepts and between techniques of measurement. In short, there are differences between the natural sciences, e.g. astronomy, physics, chemistry, biology, and the social sciences, e.g. history, economics, political science, sociology and psychology. There are also problems of methodology related to the natural sciences which differ from those associated with the social sciences.

However, the debate about problems common to all forms of enquiry and about the uncertainties of scientific methods of investigation made evident that some of the traditional dichotomies in comparative education are losing their force. The antithesis between history and science, for example, no longer arouses very heated argument. The search for transcendental or immanent "factors" has been largely abandoned. No sharp distinction is now made between empirical, statistical and qualitative studies. There is wide agreement that data have to be collected and classified. Similar classificatory systems are frequently followed by different researchers. The view that explanation and interpretation as well

as description are elements in comparative education is hardly questioned. Discussion turns rather on such issues as the relationship between large-scale or macro enquiries and small-scale studies or micro enquiries, and the possibility of making general statements about education in the knowledge that each national system of education has unique features. A dominant concern is now to describe general trends of development, to establish relationships between education and its social infrastructure, and to explain why in a particular national system things are as they are. A developing interest is to anticipate the future, however crudely, and therefore there was much debate on the possibility of predicting social events. Some participants claimed this to be virtually impossible. Others regarded prediction as one of the aims of comparative education. However, the two sets of opinion were not diametrically opposed, for there was general agreement that predictions were by their nature probable and contingent, not certain.

While the debate on general scientific method revolved round the differences between inductive and hypothetico-deductive approaches, the decision about methods in comparative education focused on Harold Noah's proposal that comparative studies should attempt as far as possible to replace the names of systems (countries) by the names of concepts (variables). One participant warned that it was not easy to give unambiguous meaning to terms such as "nation" or "national system", or to "family" or "schooling", so that national examples are frequently used as illustrations - precisely what this approach seeks to avoid. Nevertheless, it justifies attempts to establish neutral models or theoretical constructs as frameworks within which comparative studies can be carried out. It encourages the study of theoretical relationships and explanations based upon numerous bundles of unexplained variables. It justifies the use of such social science techniques as regression analysis to identify unusual (some would say unique)

features of an educational system.

Central to the approach, however, is the need to operationalise concepts or variables in a way that will make comparative studies of countries and systems possible. It draws attention also to the need to improve measurement in education. Although the arbitrary nature of the attempt to replace names of systems by the names of concepts should not be overlooked nor its implications ignored, it should be recognised that such procedures lie at the heart of research in the natural sciences and have enabled some of the social sciences to achieve success. They are a necessary element in improving the scientific study of comparative education.

The implications of the need to state concepts unambiguously and to operationalise them are many. Comparisons are facilitated if there are measuring rods, or bench marks, against which individual systems can be judged. To be sure, it may be necessary to refine measuring instruments in the light of a particular problem. Concepts operationalised for the purpose of cross-national studies may not be sufficiently discriminating when used in intra -national comparative studies. On the other hand, measuring instruments adopted for national use may fail to take into account cross-national considerations, thus reducing their construct validity.

Nevertheless this shift of emphasis from countries and systems to concepts and variables removes procedures from specific contexts and permits general statements to be made about education.

At the same time valid concepts add to our understanding of systems and countries. Indeed, studies which see relationships in specific contexts will remain vital to comparative education. General statements based on concepts should be tested against the realities of particular systems of education.

The number of variables which have been given unambiguous meaning through processes of operationalisation is growing. Concepts such as social class, economic investment , financial benefits, and political stability have been defined in measurable

terms. While they may be valid in a national context, it is clear that their construct validity may be lower when they are applied in cro ·national studies. Any measure of a theoretically defined varial ill encounter system-based objections, for once concepts and var.ables are applied to specific "systems" the fit becomes suspect. This is partly because concepts cannot be unambiguously defined in non-quantitative terms, partly because operations giving quantitative results may not be accepted if they are held to stem from a particular national system, and partly because the operations themselves may not be technically sound, i.e. reliable. This last issue is one for debate by experts in specific fields of enquiry. The danger in comparative studies is that research workers may fail to make appropriate conceptual studies prior to testing for validity and reliability. But given such prior analysis there is no reason to suppose that concepts cannot be operationalised in a way that will satisfy validity and reliability tests.

If the methodological objective of replacing the names of systems and countries by the names of concepts and variables is achieved, some objections to current efforts in comparative education research are placed in a new light. A comparison of problems becomes possible. Theoretically relevant data can be identified and solutions can also be compared. It is only when direct reference to specific and different contexts is made that major difficulties arise. Thus the concepts and variables which are applicable to educational problems in different parts of the world are very similar and enable alternative policies, speculative and hypothetical though they may be, to be postulated. In specific contexts, however, problems, initial conditions and solutions differ. Thus, when we compare systems we should not be surprised to find major differences between education in New York City, London, the Ruhr conurbation and Calcutta. But to look at these systems against a pattern of concepts and variables facilitates realistic comparisons. Hypothetical alternatives may become pro-

posed policies, which in practical terms should be tested in context, with reference to one or several national systems or within a country to one or more local situations. In short, when emphasis is laid on countries and systems the problems of comparison seem so daunting as to be insuperable. Once systems and countries are replaced by concepts and variables, however, problems, contexts and solutions may be compared.

It follows that prior conceptual analysis would strengthen correlation studies. Every attempt should be made to make the key concepts in cross-national studies as unambiguous as possible prior to their operationalisation. The Marxian concept of "class" is clear; however, it is too limited to be acceptable to many non-Marxian sociologists who have over the years built up agreed measures of class. IQ tests have provided psychologists with a working definition of intelligence, but the concept of intelligence is not everywhere the same. There is more ambiguity about the constituents of political stability, educational opportunity and so on. These terms have still to be operationalised in a way which will satisfy researchers even within the same national system. They are terms to which unambiguous meaning in cross-national studies cannot easily be given. In the face of these difficulties it is tempting to provide operational definitions without regard for the concepts from which they arise. A major task in comparative education is to ensure the construct validity of cross-national tests.

Such suggestions run contrary to the view that comparative educationists should not become too conscious of methodology. It is true that many research workers do not make explicit the assumptions on which their work is implicitly based. If the assumptions are stated, however, replication of studies is facilitated and a measure of consensus among research workers is encouraged. Such consensus is important since, as has frequently been said, scientific objectivity is nothing more nor less than the pooled subjectivity of individual scientists. Consensus on operational definitions is necessary if comparative educationists

are to accept the findings of empirical research as "objective".

In comparative education there is growing agreement on some of the measures relating to education. To give one example of how statistical indices are being improved, crude enrolment figures have been replaced by participation rates. Other measures are constantly subject to criticism and refinement. Doubtless, processes of refinement depend upon some awareness in empirical research that the measures are inadequate. The constant search for more and more reliable tests and measuring instruments characterises all sciences. Recent empirical studies have drawn this fact to the attention of comparative educationists. In the IEA mathematics study, for example, while the validity and reliability of measures of mathematical achievement were rigorously checked, less attention was paid to the cross-national validity of concepts such as social class, authoritarian modes of teaching, rote learning and so on. Yet all these variables, in context, bear on the results of achievement tests.

In the analysis of concepts prior to their operationalisation, theoretical models are of assistance, but they are usually drawn from established disciplines - economics, sociology, psychology, and political science. These are not culture-free and indeed it is doubtful whether any set of theoretical assumptions can ever be neutral. It might be asked, then, whetner it is legitimate to depend in comparative studies upon a particular pattern of assumptions, for example those made by such thinkers as Plato, Condorcet or Dewey. Such patterns of concepts may appear to stem from a particular system or country. Should they therefore be viewed as suspect in comparative studies? I think not. I see no objection to the adoption of a clearly identifiable pattern of assumptions as a framework regardless of whether the assumptions derive from one of the social sciences or from particular authors. The question is not whether such models are legitimate but rather whether they are useful. It may well be argued that Marxian concepts are useful when Communist systems and countries are compared, but of less value for non-Communist countries. Similarly,

it might be argued that Dewey's concepts are most applicable to explanations of American education. But the object of investigating relationships between concepts and variables is to detach the pattern from particular systems and countries, and it may be as useful to select arbitrarily a specific author's conceptual framework as it is to attempt to establish a neutral one.

Case studies give a specific national meaning to general concepts and offer an opportunity to examine in detail the context in which hypothetical relationships (confirmed by macro studies) find practical expression. Conclusions drawn from hypothetical statements or generalisations can and should be tested in particular contexts. Such tests require that predictions from general statements are made in the light of initial conditions. According to Popper there is little difference between prediction, explanation and testing. The nature of the problem decides which of the three is best employed. Many comparative educationists wish to analyse socio-educational problems and formulate solutions to them. They are seeking to explain systems. Others accept a universal statement about education and the context in which they wish to apply it. In these circumstances prognosis is emphasised. If, however, the research worker is seeking to make a choice between alternatives, or if he is unsure of the initial conditions, his interest is in testing propositions in a way that will enable him to eliminate one or other of the solutions. In any case in order to predict, explain or test in the social and natural sciences, two types of statement have to be made:

1. a universal or general statement of a relationship, i.e. a hypothesis, and
2. specific statements (quantifiable or not) about the initial conditions (special context) under which the hypothesis is to be tested or an explanation given.

In other words, relationships, problems and solutions should be seen in context. It is not a matter of whether general statements

are or are not permissible; they are necessary. And, by the same token, so are case studies which aim to describe the initial conditions under which a general statement is to be tested.

Concentration on one or other of these necessary features of comparative educational studies has ebbed and flowed. Periods and persons have shown marked preferences. The pioneers were generalisers. Many of their students and successors moved from the general to the specific and studied a system or systems in depth. Now there is a move away from uniqueness to generalisation, but the latter differs in kind from that of the pioneers. Generalisations are no longer regarded as statements about certainties or about universal trends. They are based on a relativistic view of education and society among non-Marxian comparative educationists. This view of method justifies large-scale studies based upon hypothetical statements of the kind suggested in Noah and Eckstein's *Toward a Science of Comparative Education* (1969). Confirmation of assumed relationships is of theoretical interest; unfortunately conclusions have sometimes been drawn regardless of initial conditions. It is at this point that testing in context becomes a necessary part of the comparative method. In other words, deviations from the general rule have to be explained.

An example was quoted from the USA. Arnold Anderson compared college participation rates in California and Massachusetts. In California, approximately 72 per cent of all high school students graduate, and of these some 60 per cent enter public colleges which have low tuition fees. In Massachusetts, on the other hand, 66 per cent of all graduating students enter private colleges that have high tuition fees. There is, he claimed, no obvious explanation for the situation in Massachusetts which refutes the widely-held opinion that the poor in the USA cannot finance a college education, nor can the disadvantaged or the blacks. In Massachusetts they have done so for years. Any explanation of such paradoxes even within one country takes us into the realm of history and ideology. The general model on which correlation studies are built may be inadequate as an explana-

tory tool. Methods of explaining bundles of unexplained variables in given systems may well depend on non-quantitative, non-empirical techniques.

Noah's general assertion, therefore,gave direction to the general discussion about methods in comparative education. It is evident that in some respects, but perhaps less explicitly, the pioneers in identifying "factors" attempted to replace the names of systems with the names of concepts. The methods of handling these concepts were philosophical and historical. The new trend in comparative education is to study concepts and variables using the empirical methods of the social sciences. Yet, as we have noted, unexplained differences may well be explicable only by using more traditional methods.

A central problem in comparative education has always been to demonstrate the relationship between general statements about the determinants of education and the "facts" of national systems. Part of the answer lies in terminology and in attempts made to ensure in cross-national studies that key concepts are given unambiguous meaning. Two techniques are emerging. The first, that of operationalising concepts to give numerical results, has gained much ground recently and has done much to improve the image of comparative education. I suggest that techniques of conceptual analysis should now be developed in comparative education in an attempt to give unambiguous meaning to key terms in non-quantitative terms and also as a prerequisite when they are operationalised.

An example of the difficulties associated with this task arose when the group reports were presented. Is it possible to draw universally acceptable distinctions between indoctrination and education? One group proposed to place these terms on a scale for the purposes of comparative assessment. Theoretically such distinctions can be made, though the task of analysis may be difficult. It is far less easy to judge the extent to which one system of education indoctrinates young people while another educates them. In the discussion which followed this paper it

became obvious that we may avoid some intriguing and difficult tasks in comparative education by concentrating on what appear, superficially at least, readily operationalised concepts. Not many years ago, in the interests of goodwill, the discussion which followed this paper might have been pushed into the background. On this occasion, fortunately, it was pursued in a manner which illuminated some central questions of method in comparative education.

While it was gratifying to note the measure of agreement which has now been reached between comparative educationists from different national systems and holding differing theoretical positions, it would be unwise to assume that consensus has been achieved. Major differences still exist between practitioners. Today it seems likely that they will provoke fruitful rather than self-destructive debate and discussion about methods in comparative education. For, not surprisingly, those who deplore a preoccupation with methodology in favour of substantive work still enter readily and constructively into methodological discussions. There seems little danger that these will go on *in vacuo*. There is sufficient field research under way to ensure that theoretical discussions will be moderated by results of enquiry. It is to be hoped that no false dichotomy will be drawn between concern for relevant methods and actual research and teaching. Either one can illuminate the other. Insofar as the conference results in this, it will have served comparative education well.

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PART 1

General Problems of Scientific Method

> Sciences, all sciences arise as refinements, corrections, and adaptations of common sense. There are no unique, simple, scientific methods that one can prescribe; but there are certainly traits that any science must have before it pretends to be one. One is the quest for objectivity .... This is the first step in the quest for certitude. But certitude is not the whole story. When we move from common sense into scientific things we also move towards generality using analysis, using observation, and in the end, using experiment. And we also do something which is even more characteristic; we look for novelty, we look for transcendence, we look for features of experience that are not available in ordinary life. Characteristic in physics are the instruments that enable us to transcend elementary, daily experience.

Thus wrote Robert Oppenheimer some seventeen years ago (Oppenheimer, 1956). However, when one reflects on the considerable prestige of science at the present time, not to mention the commitment of large amounts of public and private funds to permit further work ("research"), it is difficult to reconcile such reflections with the belief in the common sense origins now attributed to science.

It is important to note that until comparatively recent times everyday life seemed to progress without the benefit of science, not that science did not exist. Common sense explanations sufficed for most phenomena and experiences. When these failed, metaphysical assumptions were required. Sometimes the metaphysical assumptions became part of the explanation without there having been any failure of common sense explanation. Certain of these assumptions acquired a great deal of support and in some cases actually impeded other kinds of thinking and explanations of everyday events. During the Middle Ages the world was viewed as a manifestation of God's

thought, and the search for explanation resulted in a natural theology as exemplified by the writings of Roger Bacon, who recommended equal search of the Book of Scripture and the Book of Nature. Others, like Abelard, were content to push common sense explanations as far as possible, and only when these failed was it necessary to invoke the "will of God" as an explanatory principle. But searching for expression of the will of God, or looking for examples of the working of the mind of God, did place emphasis upon observations and their collection. It was the increasing use of calculation that both demanded better observations and served to winnow acceptable from no-longer-acceptable explanations. Part of the so-called Copernican revolution lay in the preface to Copernicus' book written by the Lutheran, Osiander, who stressed not the heliocentric nature of the universe, but that the book, *De Revolutionibus*, could be used as a device for calculating planetary positions, the results to be set against the existing Ptolemaic system. The observations on which calculations could be performed were collected by Tycho Brahe, and arithmetical use was made of them by Kepler. His was no transient effort. Working as he did before the invention of logarithms, and at a time when the entrenched Platonic view of the circle as the perfect geometrical form had a corollary in the belief that celestial bodies move in circles, Kepler required many years of laborious computation before formulating his first two laws, and nine years more before publishing his third law, laws which, incidentally, are still valid today. His further step, that what had been calculated was to be subject to confirmation or refutation by subsequent exact observations, was a most important contribution to the *method* of science.

His successor, Galileo, was unable to accept elliptical motion; for him the circle was still supreme, and thus, although he was well aware of Kepler's work, he set out neither to confirm nor to deny it. Galileo's contribution to science most probably lies in his decision to abstract from observations those aspects which are amenable to mathematical treatment. It follows that mathematical manipulations will lead to predictions which can be

subject to verification under the appropriate conditions. Galileo himself was less concerned with exact experimental verification than is commonly assumed. It is even doubtful if he ever used the leaning tower of Pisa for the purposes alleged in his work on falling bodies. His belief in reason and mathematics is well expressed in his statement: "The knowledge of a single fact acquired through a discovery of its causes prepares the mind to ascertain other facts without need of recourse to experiment...". Perhaps one further quotation from him may be in order: "Philosophy is written in that great book which ever lies before our eyes - I mean the universe - but we cannot understand it if we do not first learn the language and grasp the symbols in which it is written. The book is written in the mathematical language, and the symbols are triangles, circles, and other geometrical figures, without whose help it is impossible to comprehend a single word of it; without which one wanders in vain through a dark labyrinth."

Descartes went further in his belief that mathematics would unlock all doors, a belief revealed to him in a mystical experience he underwent. He left us a two-part world - the mind of man, composed of thinking substance, and all else, which could be reduced to matter, motion and extension. The mathematical explainability was a delusion but Descartes made the separation of mind and matter more absolute than ever before. His importance in other ways was equally great, both as a major philosophical figure of the Age of Reason, and for the four-step, virtually intuitive deductive methodology which he propounded:

1. the method of universal doubt so as to remove bias,
2. the division of the substance of the argument into the simplest parts,
3. the movement from the simple to the more complex, and
4. the collation of many sources contributing to the argument and the enumeration and checking of the points of the argument.

Without doubt the greatest man of the age was Newton, theologian, mathematician, philosopher and experimental scientist.

Reluctant in publication (it took Halley three years of constant effort to persuade him to write his *Principia*, and as the recognised master of classical geometry he wrote in that form so as to discourage controversy, which he abhorred. His preface to the *Principia* set out clearly the three stages of methodology which he established: observation, theorisation, and prediction. He refused to assign a cause to gravity and claimed, in this respect, "I frame no hypotheses; for what is not deduced from the phenomena is to be called hypothesis; and hypotheses, whether metaphysical or physical, whether of occult qualities or mechanical, have no place in experimental philosophy. In this philosophy particular propositions are inferred from the phenomena, and afterwards rendered general by induction." This particular passage is often used to indicate that Newton was not consciously aware of his own methodology. In fact it is believed that he used or implied hypotheses in some eight different senses in his work. Some he preferred to regard as speculative queries. Perhaps he was constrained somewhat by Pascal's position on hypothesis confirmation; a hypothesis could only be true if its denial would lead to a logical contradiction, and could only be disproved if its acceptance would lead to an absurdity. The tendency after Pascal's death was to consider a hypothesis verified if it explained the observed phenomena. But what constitutes adequate explanation is still a problem.

Newton's work set the seal on a particular formulation or generalisation. His three laws of motion and his derivation or generalisation of the inverse square law became the universal law of gravitation. The work of a series of brilliant mathematicians, Euler, Bernouilli, D'Alembert, Lagrange and Laplace, extended this to a whole realm of celestial mechanics, climaxed by the predicted discovery of the planet Neptune in 1845. A final stage of perfection in physics had been reached, or so it appeared. All that remained was more precise determination of some of the constants, g in particular. As Michelson remarked, further advance-

ment would be in the final resolution of the decimal point. This mechanisation of the universe, the corpuscular-kinetic universe of Newton, affected almost all the prevailing modes of thought. Given time, all the mysteries of the machine were knowable and its method of working predictable. The paradigm, to use Kuhn's expression, enabled workers like Avogadro, Faraday, Carnot, Helmholtz, Kelvin and Maxwell, giants in their own right, to fill in the panorama first indicated by Newton. We are still living with the results of Newtonian, or classical, physics. Only now are the results of the discoveries of 1895-1905, the work of Becquerel, Roentgen, Thomson, Planck and Einstein, producing their substantive effects upon our own way of life and manners of thinking.

Within the Newtonian paradigm the mathematisation of space had prior place. But it was a Euclidean space, and within its premises deductions would surely follow. But suppose it is asserted that, as a premise, two lines can be drawn through a given point and parallel to a given line, can a further set of deductions be drawn which will be logically consistent? Saccheri, a Jesuit priest, did just this as *un jeu d'esprit* in 1733. Riemann and Lobachevsky later produced equally logically consistent geometries. Newton had endowed space with the property of resisting the acceleration of particles, Maxwell gave it the properties of an "aether". When one introduces an inertial frame of reference rather than a fixed frame of reference, time no longer becomes an absolute,and time and space become merged in a four-dimensional continuum. Einstein's theories of relativity (special and general) in relation to the propagation of light led to an apparent absurdity. Thus, in Pascal's terms the theory of relativity must be rejected. But there is another solution: to reject one of the premises, in this case the classical ideas of space and time. Hence the substitution of a Riemannian for a Euclidean geometry maintained the "theory" of relativity. Riemann had not endowed his "space" with any properties - it was solely determined by its postulates and its calculus, attributes of later theories of science method. The first experimental verification of Einstein's

theory came in 1919. The second, of his derivation of the equivalence of mass and energy in the form $E=mc^2$, came with devastating consequences in 1945. Einstein insisted that he had merely studied the history of physics and operated within its own logic and philosophy.

To return, for a moment, to Newton and his immediate precursors, we may note still another effect of the mechanisation of the universe in the split between the philosopher on the one hand and the physicist/astronomer on the other. Throughout the two centuries of classical Newtonian physics the gap between astronomer and physicist widened. It has taken the Einstein revolution of atomic physics and the equivalence of energy as the mass times the square of the velocity of light to bring some confluence of the atomic physicist and the astro-physicist. To some observers this betokens a return to a more unified science. However, during those two centuries the physicists seemed to have the simpler task of dealing with matter and motion compared with the philosopher who had the task of accounting for the sensible properties of things. As we examine their work we see that first the rationalists, then the empiricists,by the scepticism of their methods removed much of the metaphysical and left much of the real. Locke, the first of the major English empiricists,saw himself as "an under-labourer in clearing the growth a little and removing some of the rubbish that lies in the way of knowledge". As Turner suggests (1965),"he sowed the seeds of epistemic criticism and with the fruits, his immediate heirs brought down the house of metaphysics and thereby left more rubbish than even he could have swept away". Locke asked pertinent questions about the structure and limitations of knowledge, the nature of the real world and the roles of experience and logic in establishing a theory of knowledge.

The empiricists did not get rid of metaphysics and moral philosophy, but granted only that they could be sanctioned by sentiment, not by logic or empirics. Knowledge of the world comes from perceptual experience, i.e. results from experience. Simple precepts are the basis of our more complex ideas, logic alone

cannot yield knowledge of the external world. Distinctions were made between logical truths and empirical truths (relations of ideas and matters of fact, in Hume's terminology). Kant was to add that sensory impression was a necessary but not a sufficient basis of knowledge. There must be a perceiver who organises the sensory input. Once stated in this way it becomes easy to endow the perceiver (organiser) with powers of organisation, and to reject the *tabula rasa* of the empiricists. Kant opted for *a priori* acceptance of certain propositions (judgements). Intuitively we know that they are true; the actual details of what is true are filled in by our sensory experiences.

In the early 1920s there came into being the Vienna Circle, a group of philosopher scientists charging themselves with infusing rigour into the enquiry process. Why, they wondered, can scientific questions be answered, but not philosophical ones? There seemed to be a greater body of accepted scientific fact than ever appeared likely with philosophy. The logical positivists set out to establish the proper philosophy, an analytical one. The members of the Circle, and their correspondents, were to concentrate on just those problems that could be formulated unambiguously, using logical or symbolic language. It was argued that so many philosophical questions were really questions about language, not about fact. Statements were either meaningful or meaningless; which were which should be established by the Principle of Verification. Three, presumably subsidiary, doctrines also arose: the doctrine of physicalism, that all scientific statements can be expressed in the language of physics; the doctrine of "atomic sensationalism", that all statements of science are truth functions of more basic, or atomic, statements and constitute the building bricks of the structure of science; and the doctrine of logical syntax. This last indicates that any language consists of symbols, natural or artifical, whose use is determined either by formation rules (to form sentences etc.) or by transformational rules (the rules of inference by which statements or sentences can be transformed into other statements). The Vienna Circle was dispersed in

the 1930s, Carnap, Reichenbach and Hempel going to the United States to become a driving force in post-pragmatic American philosophy, others like Waismann and Popper to England to build on the work of the English empiricists and more particularly upon the recent work of Ayer, Braithwaite and Wittgenstein, individuals whose work was already favourable to their own. The legacy of that work has had great effect upon the philosophy of science and the thinking and methodology of scientists. Some aspects have become so much the prevalent mode of discourse that their origins no longer appear relevant or important. Among those aspects we should note the terms hypotheses, theories, laws, models and reductionism as being the most important for any science - natural, biological or social. As we shall see the terms themselves have interlocking functions.

We may recall that Newton, for example, used the term "hypothesis" in some eight different ways. For others who started with a belief that Nature was lawful, and that the collection of instances would lead to a revelation of the law, there was little need for hypotheses. Accordingly, they played but minor roles in the work of Bacon and Mill. Present-day views on the nature of the hypothesis and the use of hypothetico-deductive approaches owe much to Popper. He showed that we have greater confidence in rejecting hypotheses than in accepting them. We start with a theory which contains a number of hypotheses, any or all of which may be true or false. With our transformation rules these can now be stated in alternative forms. By correspondence rules these alternative forms can be made as statements of possible observable events. If the hypothesis can be falsified, i.e. proved not to occur, then we are justified in rejecting it. However, if the behaviour is shown to occur, and if we have only sampled the behaviour exhibited from all possible samplings of such behaviour, we can at best end up with a probablistic estimate of its occurrence. In the statistical expression of this we set up a dummy hypothesis - the null hypothesis - for the purposes of enquiry. If we accept our null or dummy hypothesis we are only in the position of saying that our original

hypothesis might be true.

Since 1920 the term "theory" has had both a general, diffuse meaning and a more restricted one within the language of science. This latter suggests a series of connected propositions which serve to predict events, behaviour or phenomena. Some of these propositions are taken to express characteristic ideas for the theory, others express relations between the ideas. The former constitute hypotheses, the latter the dictionary. According to Braithwaite (1953), a "scientific theory is a deductive system in which observable consequences follow logically from the conjunction of observed facts with the set of fundamental hypotheses of the system. A study of the nature of a scientific theory is thus a study of the nature of the deductive systems used in the theory." He states that every proposition in the system follows immediately or mediately from the initial propositions. Deduced propositions come at the end of the chain. The best way to use or construct such a system is by the use of symbols representing elements of the sentences or propositions. The rules of symbolic manipulation which are used form the calculus. The calculus is independent of the meaning attached to the symbols and so can be checked by the rules for its operation. By using mixed deductive systems it is possible to make a division between the pure mathematics and the remainder of the system. Texts dealing with those sciences which are complex deductive systems often have a separate section dealing with the mathematical manipulations necessary for their understanding - as, for example, matrix algebra, used as an introduction in factor analysis. Sometimes a separate text is provided, such as statistical methods for biologists. We thus arrive at the elements of a formal theory:

1. the presumptive hypotheses of the theory,
2. the syntax and calculus of the system,
3. the dictionary of the theory,
4. the model of the theory.

Before discussing models, it might be in order to look at the distinction between the terms "hypotheses" and "laws". There are many propositions offering a lawful statement about some perceived

regularity of occurrence between events. For example, the Weber-Fechner Law, in psychology, expresses the relationship between a psychological (experienced) effect and a physical dimension. It is valid within narrow limits of a physical dimension. Boyle's Law expresses a regularity between pressure and volume of a gas. The former, at the most, can be regarded as a working expression of a general belief that there ought to be some relation between the physical dimensions of a stimulus and the psychological experience of the same stimulus. Boyle's Law, on the other hand, can be deduced from the kinetic theory of gases. At its first formulation therefore Boyle's Law was a limited propositional relationship; now it can be seen as a theorem derived from the more formal theory, the kinetic theory. Newton's Laws of Motion are postulates within his formal system of mechanics. Kepler's Laws, like Boyle's Law within kinetic theory, are deducible from Newton's system. In many ways the use of laws which cover relationships between restricted series of events tend to lie outside the mainstream of theory. In psychology, however, and in some social sciences, the functionalist approach still seeks such lawful, if restricted relationships, rejecting the classical Newtonian approach for the more limited, partly inductive one. Collingwood (1946) suggested that the "science of human nature" broke down because its method was dictated by the analogy of the natural sciences, and this he saw as the reason for the failure of psychology to live up to its promises when it broke away from philosophy and proposed ways of its own to study the workings of the mind.

In any study one does not operate without some regard for the past. As Oppenheimer (1956) suggested:

> We come to new things in science with what equipment we have, which is how we have learned to think and above all how we have learned to think about the relatedness of things.... We cannot learn to be surprised or astonished at something unless we have a view of how it ought to be and that view is almost certainly an analogy. We cannot learn that we have made a mistake unless we can make a mistake; and our mistake is almost always in the form of an analogy to some other piece of experience.

It has been argued (Munitz, 1957) that throughout man's scientific history analogy has been at the base of the interpretation of nature. Some analogies have been more spectacularly successful than others: DeBroglie's work on wave mechanics and Einstein's on relativity are prime examples. The use of analogy grew into a more self-conscious, more detached affair by use of the term "model". Models may be characterised as formal or structural. Formal models incorporate the viewpoint of logicians and require systematic axiomatisation. This tends to suggest that the science has reached a highly developed stage. Premature axiomatisation may become a straight-jacket for further thought. Structural models, on the other hand, are more palpable, they can often be visualised. Such models have the advantage of permitting us to think about the theory without having to consider its calculus. Lachman (1960) has suggested that the prominent notion of model is an order structurally independent of the theory. More than one model generally functions for a system. Lachman extends his argument by recognising four functions for models. In the first place they may be seen as providing modes of representation, including novel modes for conceiving the hypothetical ideas and postulates of a theory. (We represent light as travelling in straight lines but we no longer have a theory that light does travel in that way.) In this first usage we often speak of the observation consequences happening in an "as if" fashion. The second function of models is to act as rules of inference (the so-called "inference tickets"). We set out the rules by which the symbols are manipulated to arrive at new relations. The adjective preceding the word model, e.g. conditioning model, mathematical model, computer model, indicates the source of our inference principles. Some models may have a third function, that of interpreting the calculus of the theory, and some models provide pictorial representation or visualisation. This last use is the one most generally recognised by those making casual reference to "model building".

Attention should be directed to a particular use of the

model, the "black box" version. This permits a representation of what we do not know, and specifies that something exists between input and output variables. In Skinner's psychological system, reinforcement schedules are input and specified psychological behaviour is the output. He is not concerned with the contents of the black box and is prepared to leave their elucidation to others. Many years ago, Woodworth placed *O*, the organism, between stimulus and response as an early black box. Many psychological black boxes are brain representations and to that extent they are often reductionist. The cyberneticists and system analysts have raised the status of the "black box" by assigning to it such functions as memory, operation, feedback loop. Still others, working in a crudely classified system, use a mathematical function as their own version of the "black box".

Finally, we may wish to note that contradictory items, or rather contradictory attributes, may be included in the model, so that the model does not have to be logically consistent (the calculus of the theory ensures what is necessary). The best known example of such contradiction is the assumption that the particles in the kinetic theory of gases are both infinitesimal and perfectly elastic, attributes not assignable to observable objects.

We return now to a particular use of the model, which concerns the inference rules when there is substitution of the system of relationships from some other source to the theory itself, i.e. the use of laws of conditioning in providing a model of a non-observable fractional antedating response, or information theory, or computer theory to indicate memory functions in human beings. In grosser examples, the substitution of the language of physics for that of biology, or of neurophysiology for psychology, would be referred to as reductionism. Turner (1965) has stated this in more general terms: "Linguistically, a statement or set of statements (S_R) is reduced to another set of statements (S_r) if the latter can be substituted for the former without contradiction, without loss of content, and if the latter is in some sense more basic than the former."

Turner goes on to speak of constructual and theoretic reductions. If we have a term, a construct, or sometimes a construction made from sense data, which does not have direct existential status, we may reduce the term to a set of statements about objects which do have such status. Median reaction time is a construct, so is habit strength in terms of Hull's learning theory. Each of these constructs is defined by the operations we perform upon our empirically derived sense data. In most theories that employ constructs there is some interdependence between them - they tend to form a nomological net (Cronbach, 1955). When we use a construct which applies in more than one theory, we find that such a construct is the one least likely to be modified or rejected during hypothesis modification. On the gross level we may reduce sociology to psychology, psychology to biology and biology to physics. If the chain were complete, all sciences would reduce to physics (or mathematics). This supposition might be worth cultivating as a hope for the eventual unity of all science, but there are limits and dangers in reductionism. As Platt has pointed out (1970), in systems of hierarchical complexity higher levels depend upon lower levels but develop new properties of their own. To reduce to one science, or to a lower order, denies the opportunity of finding such emergent properties. He reminds us that the biologists discovered electricity whilst the physicists were stargazing, that it was the biologists and geologists who fixed the age of the earth in millions of years, whilst Kelvin working from solar energy generation predicted it in thousands. To Platt the most pernicious feature in reductionism is the ignoring of the open-ended nature of each science and the different rates of development at which they proceed.

Much of the foregoing may seem remote from the everyday concerns of comparative education. However, it is contended that sooner or later those comparative educators who are concerned with the examination of the internal relationships between different topics studied by them will be directly involved with such considerations.

As we have seen, in general terms, data can be collected with a belief that the lawful nature of the data will be revealed, or it can be collected to support a theory, or even to reject a null hypothesis.

It is therefore proper now to consider methodology in comparative education. The three contributed papers given *in extenso* in this section illustrate some aspects of the general problems faced by social scientists and by comparative educators in particular.

In his paper Holmes has developed some of Popper's arguments for a more analytical approach to problems of comparative education, in particular to examining and hopefully clarifying the constructs we seek to employ. In the major section of his paper he takes up the particular topic of "explanation", a highly important topic for analytic philosophers. Unlike Popper, he does not speak of causal explanation from "one or more universal laws, together with certain singular statements, the initial conditions" but utilises Popper's "levels of explanation", higher and lower level. His analysis of two (the only two to date) major cross-national studies made by comparative educators, the Kyushu project and the IEA project, shows, in his opinion, lack of initially adequate conceptual analysis. Of the latter he apparently concludes that it utilised a psychometric model, and hence its problems should not lie with the inference rules of psychometrics but should lie where, in fact, they were found, in the inadequate differentiation of the key terms (constructs) in the independent variables.

Barber's paper, written only partly from the viewpoint of a political scientist, is concerned with the social science approach in a non-reductive way. As a corrective to what he sees as the reductionist use of science (or science as the "sacred cow") he raises four arguments which require critical attention by social scientists. Methodology is a reconstruction of what men have done in the past. In part it is the result of the paradigm of scientific explanation, but each paradigm has had a

"pay off" function before the next scientific revolution takes over. At that time it does slow down progress in the "new science". Which decision should be supported? No paradigm, no methodological preparation but emphasis on serendipity and creativity? Or, as some scientists say, "Research is doing one's damnedest, with what one has, no holds barred." But what does one have? Perhaps until we have more evidence about the "creative personality" or the psychology of discovery we must suspend judgement. But meanwhile what should be done? His second part expands the treatment of functionalism and deals with problems of definition in social science. Additionally, he looks at the problem of comparison in terms of "invariant points of reference". One feels that this section should be read side by side with Holmes' criticism of the construct differentiation of variables in the IEA study, a point argued in the conference itself.

The third paper looks at developments in psychology, a discipline which is neither clearly biological nor clearly of social science orientation. It is a discipline which in its biological aspects has seen the development of a formal, theoretic, axiomatic approach which has been followed by a gradual return to a more functionalist approach. There is no agreement on paradigms, and there are few established laws as compared with physics or chemistry. In this paper I have suggested that there are some indications of growth in new directions, some of which might give the appropriate adjectives to precede the word "model" in comparative education. Of the formal model taken from Hull (1943), which is compared with one more recently developed in social science by Przeworski and Teune (1970), it is interesting to add a further point of similarity taken from Coleman, in the latter's examination of Durkheim's study of suicide (1964). Durkheim was faced with a problem case in the mould

$$y_s = f(x_1, x_2, x_3, \ldots x_n)$$

where p_s is the probability that a person will commit suicide. Durkheim, as opposed to Hull and Przeworski and Teune, was trying to discover the variables x_1, x_2, ...x_n, but was not able to get beyond x_1 which he described as "lack of shared purpose".

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Since World War II, to the historical and statistical emphases in comparative education have been added contributions from sociology, economics and psychology. It has been claimed that each has added a scientific dimension to cross-national studies of relationships between education and selected aspects of society. In order to evaluate these contributions it seems desirable to examine some general features of "scientific method".

One claim that should be looked at carefully is that experimental and empirical research in education increase validity and reliability. In the social sciences confidence in such investigations has ebbed and flowed. On the one hand, non-experimental wisdom has apparently failed to find workable solutions to pressing problems. At other times there has been an inordinate dependence on empirical enquiries in attempts to increase the rate and amount of progress in understanding individuals and society. Education has not been immune from these fluctuations of confidence in modes of enquiry.

In the 1920s experimental techniques drawn from psychology became the vogue. In England, for example, Burt's work tended to dominate educational research. Sociologists came along later and stepped up the amount of research on relationships between education and social class. The late fifties and sixties witnessed an explosion of interest in the application of economic models and techniques to the study of education.

At the same time historical and philosophical modes of enquiry in education tended to fall into disrepute. The kind of criticism made of early forms of the history of education by Cremin and Bailyn may account for the lowered status of historical studies generally. As for philosophy, the application of

analytical techniques clarifying basic educational notions and arguments gave a new direction to research in this field of education. However, "pure analysis" has been criticised on the grounds that it frequently fails to inform vital decisions of policy and may explain the limited influence such philosophers exercise on policy in contrast to the ideologically committed dogmatists.

One value of cross-national studies is that they demonstrate the poverty of much of the debate about the relative value of empirical and philosophical research. Comparative studies suggest that the dichotomy between empirical (experimental and non-experimental) and non-empirical (qualitative) research is false. If research on individuals and society is to be useful, both elements are needed.

In this paper some of the claims made for empirical research will be examined since they tend to be more extreme. The first of these claims is that such research is objective, and by implication that qualitative analysis is not. Another claim is that empirical studies alone can provide knowledge about nature, society and individuals, all else being a matter of opinion. A further claim is that its results are more reliable than those derived from philosophical enquiry. Against such exaggerated claims it will be argued here that conceptions of culture and society should be analysed philosophically in order to improve the validity (particularly the construct validity) of experimental and non-experimental research. Such analysis should take account not only of the most general societal concepts but also of the middle-range theories on which much empirical research is based.

Some Debates on the Philosophy of Science

As a basis for worthwhile discussion, dictionary definitions may give rise to verbalism. Yet they are useful. For example, according to the Shorter Oxford English Dictionary, "empirical" has broadly two meanings. Both are drawn from the practices of a sect of physicians who based their rules only on experiences. One derived meaning of empiricism relates to practices ignorant

of scientific knowledge. According to this definition, the empiricist is a quack or charlatan. The other derived meaning relates to the philosophical theory which regards empirical data as the only source of knowledge. The Shorter Oxford Dictionary gives meaning to the term by referring to J.S. Mill's theory of induction. Chambers Technical Dictionary clearly identifies "empirical" and "empiricism" with those theories of knowledge and scientific method known as induction. Hence, "Empirical: said of a rule or generalisation which is induced solely from observation, without correlation with other scientific laws, from which critical phenomena are then deduced from experimental observation." A nominalistic definition would associate empiricism, at least traditionally, with theories of induction propounded by Aristotle, Bacon, Locke and J.S. Mill and subscribed to by such creative scientists as Darwin, but criticised, among others, by Berkeley and Hume.

It is relevant to focus attention on this meaning of empiricism because Bereday's seminal book *Comparative Method in Education* (1964) beautifully and accurately exemplifies how Mill's method of induction can be employed in comparative studies. The fact that I reject this theory of scientific method does not, in any sense, reduce my admiration for the systematic way in which it has been expounded by Bereday.

"Induction" as a theory of "empirical" enquiry has, of course, been attacked by philosophers of science and practising scientists. Popper's analysis of it (1957) and his categorisation of J.S. Mill as one of the many nineteenth century historicists is well known. Popper's suggestion that the hypothetico-deductive method was put forward by Mill in Book VI of *System of Logic* when he found that he could not apply the methods of the natural sciences (as he saw them) to the social sciences places present debates in comparative education in perspective. Induction and the practices it implies have only partially been rejected. The hypothetico-deductive method has not yet been employed in a major research project. Its main constituents are the non-logical formulation of a hypothesis

which is then exposed to criticism, usually through experimentation, which makes use of logic and empirical testing by comparing observations and experience with logical consequences of belief. If events logically predicted from statements occur, confidence in the hypothesis is strengthened, otherwise it may be abandoned altogether.

One significant difference between induction and the hypothetico-deductive method of enquiry is that while in the former a hypothesis is induced only after the careful collection and classification of observable data (colligation), in the latter the source of the hypothesis is irrelevant and is frequently intuition. In Mill's theory an inductively reached, tentative hypothesis (of limited validity and application) can through successive stages of data collection achieve the status of a law, unconditionally valid in time and space. In hypothetico-deductive theory, laws, like hypotheses, always remain hypothetical to be confirmed or refuted by tests in a specific context. Thus the need for case studies in comparative education.

The objectivity of "facts" and testing procedures turns on how far observations can be construed as independent of conceptualisation. The view that "facts" or sense data are, or can be, received by the mind without the latter imposing interpretations or constructions on them has been criticised. On the other hand, the complete absorption of "facts" into theoretical constructs is not acceptable. The case for the relative autonomy of facts is that they exist and are available regardless of theories to be tested, but description of facts depends upon some theory (Feyerbrand, 1966). Facts may be brought to the attention of a research worker only with the help of alternatives to the theory to be tested. Similarly, a distinction may be drawn between the independent existence of facts and theories and the isolation of one from the other (Scheffler, 1967). In actual thought there are indissoluble links between fact and theory but for theoretical purposes analytical distinctions can be made

between them. Such arguments support the conclusion that empirical evidence does not consist of "facts" pure and simple. There is a sense in which data or facts are analysed, manipulated and indeed manufactured, in the light of some theory. This goes beyond the technical manipulation of data into the realm of conceptual analysis.

Operationalism offered an earlier solution to this problem by maintaining that theoretical concepts should be defined in terms of measuring operations which are specific and unambiguous. In view of the confusion created in physics when verbal definitions of mass, length and time were questioned, it is not surprising that operationalism grew out of the work of a physicist, P.W. Bridgman (1927). It has been taken over by some social scientists. It is a tempting but naive solution to the problem of defining concepts. Tempting, because provided co-workers accept the defining operation, reliable testing instruments can certainly be developed. Naive, because the tests thus prepared may not be valid.

The measurement of "achievement" illustrates in a practical way some of the points made by critics of operationalism (Hempel, 1966). This is a culture-centred term which, if used scientifically, requires that its systematic function within a set of theoretical principles and terms should be known. At the moment there is no internationally agreed set of principles which make it possible at the first or second stages of education to give unambiguous meaning to the term "achievement". A second objection to operationalism is that no scientific term can be synonymous with one set of operations because the latter afford criteria of application only within a limited range of conditions. National conditions under which "achievement" is measured differ greatly. Thus, tests of educational achievement depend for their construct validity on their relationships with national sets of theoretical principles and on the national conditions in which they are applied. In comparative studies it is desirable to analyse both the national conditions and the cluster of theoretical principles with which the measure is intimately associated. Thus, measurement

presupposes theories, and no operation can be adequately described in non-theoretical terms (Popper, 1945). IQ Tests presuppose some theoretical concept of intelligence; achievement tests are derived from theories of "what ought to be known" and by what proportion of the population.

The conclusion is that sound empirical research depends upon a critical examination of the beliefs and theories which inform it for coherence and self-consistency. Construct validity depends on the possibility of establishing a coherent and self-consistent system of theories in international terms. Clusters of conceptions and theories of culture and society are among those which should be examined, and the difficulties of teasing out clusters which are internationally valid are apparent. Only after such analysis and synthesis will it be possible to establish reasonably valid cross-national measuring instruments. If these are then used to test hypotheses, the purpose of testing, i.e. either to confirm or refute the hypothesis, should be made clear. Investigators should be aware that testing procedures may involve checking beliefs against observation reports and not against experience. Where semantic difficulties intervene, the empirical element may consequently be even more vicarious.

Finally, acceptance of the hypothetico-deductive theory of scientific method implies that not only do non-logically derived hypotheses precede the collection of data but that some problems stimulate research. The hypothesis offers a possible solution to the problem. Some philosophers of science would maintain that alternative hypotheses are needed if testing is to be satisfactory. These alternative hypotheses (or tentative solutions) arise from a prior analysis or intellectualisation of the problem. The latter and the hypothesis direct attention to particular kinds of data, enable facts to be analysed, manipulated or manufactured. These procedures should take place before the establishment of measuring operations. If these intellectual tasks are not accomplished before non-experimental empirical tests are administered, the validity of the latter must be seriously questioned.

Finally, the importance of testing alternative hypotheses in an attempt to refute them should be emphasised in cross-national studies.

Theoretical Constructs in Cross-National Research

If educational measurement presupposes theories, what cluster or set of concepts or theoretical principles is most often assumed in cross-national research? Is it possible to identify, make explicit and classify them in a way which will facilitate the establishment of valid cross-cultural measuring instruments? Can conceptual analysis make it possible to draw up a coherent and self-consistent pattern of theories which would serve this purpose? It is evident that such analysis should itself be comparative and cross-national.

The societal conditions in which educational measurements are made include all the artifacts of the national context, i.e. norms, institutions, and features of the physical environment. Of particular interest from the viewpoint of this paper are the normative statements which inform national systems of education. As background material which has a bearing on construct validity, should an attempt be made to make explicit in national situations Pareto's "residues" or Myrdal's "lower valuations", i.e. those deeply held, internalised values which motivate behaviour and might be described as the constituents of "national character"? Or is it more important to identify and describe the pattern of "derivations" or "higher valuations" widely shared by educationists in a particular national setting?

These distinctions are important because "derivations" or "higher valuations" are usually taken as the concepts or theories on the basis of which data are analysed and manipulated, and measuring instruments devised. "Residues" or "lower valuations" may well throw a different light on educational data and measurements of achievement. These differences should be taken into account when developing cross-national tests. Frequently it is easier to reach international agreement on "derivations" or

"higher valuations" than it is to discover and reach international accord on the basis of "residues" and "lower valuations". The latter increasingly differentiate one national system of education from another.

With this reservation in mind, it is suggested that prior to the development of cross-national empirical tests some attempt should be made through conceptual analysis to discover how far a pattern of normative statements can be drawn up which will have construct validity in relation to the selected educational component and to the national systems involved in the research. Unambiguous definition of these cultural concepts is difficult, particularly in cases where language differences introduce complications.

Prior conceptual analysis should be concerned with systems of statements which for various reasons are approved (not necessarily by the majority) by educationists as representing the higher valuations or most general aims of education and which indicate how individuals ought to behave and perform and how institutions ought to operate. Such restrictions help to simplify the task of establishing theoretical constructs which draw systems of statements together into a coherent and consistent pattern. The arbitrary features of such procedures and constructs must be admitted. For the inductivist this would be a criticism fatal to the whole enterprise, but for the hypothetico-deductivist the prior analysis of the theoretical principles is as important as the non-logical formulation of one or alternative hypotheses, since the former determines the kind of measuring instrument which will be used and the latter directs attention to data of a certain kind.

The tests of a useful construct are logical and empirical. The construct should be coherent and self-consistent. These are internal criteria. In addition, the construct should make it possible to identify in the various national settings on-going debates, inconsistencies and lack of coherence. These criteria are instrumental. Consequently, the selection of statements for

inclusion in a theoretical construct depends upon philosophical and observational considerations, and the pattern established should be sufficiently comprehensive to include major educational concepts and provide a rationale for the main educational institutions.

For these reasons three criteria of selection are proposed. The first set of statements should refer to the grounds for and methods of acquiring knowledge. Some epistemological theories are internationally accepted, for example dialectical materialism, induction and pragmatism have adherents in many countries although each tends to reflect a particular national outlook. Alternative epistemologies exist which may find expression in the same nation. Comparative studies should reveal how far consensus exists and whether or not it is legitimate in any cross-national study to assume a particular theory of knowledge in drawing up internationally valid tests. Who can doubt that representative Frenchmen put their case in a different way from the spokesmen of other nations? Can it be seriously questioned that Americans habitually argue from pragmatic premises? A theoretical construct for cross-national research is unlikely to include all the relevant features of dominant epistemologies; consequently such a construct should make explicit the epistemological frame of reference presupposed by the tests employed.

The second relevant cluster of theories from which operational definitions are derived relates to the characteristics of individuals: what abilities they possess, how these are distributed among individuals, what motivates the latter to learn and how they learn. This is a cluster of middle-range psychological theories. Much psychometric research assumes a particular cluster without making them explicit. Some very general theories, such as those of Freud, Jung and Piaget, are widely accepted, but not everywhere. Neither Freud nor Piaget find much favour in the USSR. It is important in devising cross-national tests of achievement or ability that the theories on which they are based are made explicit. Tests derived from a particular cluster of

psychol[illegible] theories may or may not meet the varied requirements of cros[illegible]ational content, construct and predictive validity.

Within any cluster of statements about society are found political, social class and economic theories. Some of these, particularly insofar as they represent most general higher valuations, are universally accepted. But statements about detailed features of the good and just society are likely to be regarded as culturally biased. Answers to questions of the following kind quickly reveal national differences: How should society be governed? What hierarchical relationships should exist in society? Who should constitute the élite or élites (if such are acceptable)? What possibilities should exist for members of the masses to enter the élite? How should they be selected? On what grounds? Terms such as "democracy","authority", "liberty", "equality" and "stability" change and many others are part of an international discourse. They find unique expression in the norms and institutions of particular nations. Consequently these theories, too, have to be presented in cross-national studies in an explicit, if not necessarily wholly acceptable, manner. For they justify in any system methods of selection, or non-selection, authority structures, discipline, ritual and so on. Methods of controlling and financing schools are justified by reference to theoretical statements within this cluster. Can we be certain that measures derived from any one set of theories have cross-national validity? Are economic theories more universal than epistemologies or psychologies? Are social class theories universal? In short, have operational definitions in economics and sociology been adopted without reference to the guiding theories?

The choice of sources for theoretical constructs on criteria of coherence and comprehensiveness implies judgement. Selection is inevitable. If the sources are philosophical, the problem is to select an author on whom a construct can be based which can be applied to the nations studied. Thus for Europe as a whole should the source of a construct be Plato or Aristotle? Certainly for the purposes of a cross-national study either would

be useful, but Plato's *Republic* probably most fully meets all the criteria. Similar considerations hold when constructing models for other major cultural regions of the world. Choosing from among several Hindu, Buddhist or Moslem traditions presents problems. Within a major cultural area national philosophers should be chosen as the source of a national construct.

The validity of operational definitions depends upon the possibility of drawing together clusters of statements which are common to the philosophical positions of representative national philosophers. The possibility is greater that such statements may be found within the national philosophies of a cultural region (e.g. Europe) than within different cultural regions (e.g. Europe and the Indian Peninsula). This is merely to state the obvious, that empirical tests are likely to have a higher degree of validity if cross-national studies are limited to one major and identifiable cultural region.

One concern at the moment stems from the fact that most cross-national research originates among workers who share assumptions derived from European traditions. Their assumptions may differ in detail but the possibilities of agreement between them on a common conceptual framework are greater than if researchers come from different cultural backgrounds. For this reason the cross-national research initiated in Kyushu, Japan, on moral education was of particular methodological interest.

Comparisons of national constructs and of key educational terms would contribute to the establishment of an acceptable conceptual framework. The choice of source for national constructs is not difficult. The writings of Descartes (or Condorcet), Locke (or J.S. Mill), Hegel (or Fichte), Marx (or Lenin) and Jefferson (or Dewey) are possible sources of constructs for France, England, Germany, the USSR and the USA respectively. Conceptual analysis in comparative perspective of terms (in translation) such as:

1. democracy, authority, freedom, liberty, equality;
2. personality, intelligence, ability, needs, interests;

3. truth, opinion, rationality, objectivity, experimentation,

and so on is desirable as a background to cross-national research.

In particular, the middle-range or specific theories presupposed by the test in question should be examined. That is to say, operational definitions stem directly from middle-range or regulating theories which are logically related to the most general theories referred to above. Thus, in devising tests to measure mathematical achievement, common assumptions regarding the nature of mathematical knowledge, the ability of all or some pupils to acquire knowledge in the field and the relationship of mathematical achievement to societal development should be analysed and made explicit. Similar processes of conceptual analysis should precede tests of achievement in other subjects.

At the moment, little conceptual analysis in education takes cognisance of the cross-national and comparative dimensions of research. Most philosophers tend to analyse educational terms within their own national context of assumptions about knowledge, individuality and society. In comparative education, therefore, it is perhaps necessary to move away from the synthesising philosophy of some of the important pioneers to analysis. The claim here is that such analysis should be regarded as a necessary prerequisite in cross-national empirical research.

Two Major Cross-National Studies

The Kyushu research on moral education and the IEA (mathematics) study offer illuminating examples of cross-national studies and suggest in their own ways how improvements in comparative research methods might be brought about. They illustrate the main argument advanced in this paper, that prior conceptual analysis would not only facilitate empirical research, but is a necessary element in it.

The first study, conducted by an interdisciplinary team from the Research Institute of Comparative Education and Culture

at Kyushu University in Japan, came near to adopting the hypothetico-deductive method of enquiry. The investigators set out to find a practical solution to the problems created for them by the rejection of their traditional system of moral education *Shushin* and its replacement, under American influence, by social studies. The Kyushu group relied heavily on a battery of psychological tests to establish and compare attitudes in Japan, England, France and Germany. Research teams of philosophers, historians, sociologists, psychologists and experts in methods of teaching supplied information for each country about the educational and societal contexts in which these attitudes towards good democracy and, in a general way, "Western" values were measured.

The research was brilliantly conceived and most competently executed but instruments were used in Europe which had not been subjected to the usual tests of reliability and validity. The problems of translating Japanese terms into three European languages for inclusion in the tests were very instructive. Again, projective tests were rightly employed but should perhaps have been interpreted against the normative backgrounds of the four different societies.

The battery of tests was obviously based upon clusters of concepts about society. Items in the tests clearly reflected "higher valuations" or "derivations" which in the post-war climate of Japanese opinion were intended to be representative of Christianity, Western democracy and, more generally, Western society. Some of the results were surprising partly because the test results did not reveal hidden residues or mores except negatively. Yet the unexpected results evoked further critical analysis of the concepts on which the tests were based and enabled Japanese educationists to refine their theories of democracy and morality and from these deduce logically appropriate forms of behaviour. The research helped them to formulate novel curriculum policies which found practical expression in the Japanese schools.

The original IEA study on mathematics seemed to assume as its theoretical basis a theory of induction. The problem posed was of considerable *theoretical* interest but perhaps lacked urgency for administrators in the countries involved. One objective was the gathering of information regarded as a prerequisite of sound educational planning (induction?). Indices of productivity in education were looked for and were found in measurements of achievement in mathematics. However, the measurement and comparison of educational outcomes in twelve countries did not, in fact, test a central assumption that mathematics achievement is an index of educational and national economic productivity. Moreover, the hypotheses tested did not, to the outside observer, appear to arise from the major problem under consideration. Prior conceptual analysis of this "problem" and the clusters of theories which gave rise to the operational definition of productivity would have been useful.

The search for measures of mathematical achievement and attitudes towards mathematics as dependent variables preceded attempts to analyse the influence of hypothetical independent variables. In this cross-national study, measuring instruments were constructed with the overall intention of making them internationally valid. By conducting a pilot study, by developing a machinery for constructing tests and questionnaires, by pretesting the instruments, by careful drawing of samples, and by sending manuals on test administration to national centres, great pains were taken to ensure reliability and content validity.

Husen's own admissions in his summary of findings (1967) are, however, revealing. He points out that fewer difficulties than anticipated were experienced in constructing measures of the dependent variables (achievement and attitudes). The main obstacle turned out to be the measurement of independent variables. These included aspects of the educational system and socio-economic factors, such as family background, for which descriptive data were specially collected but they were "re-

ported" and not the result of direct observation. Students, teachers and others reported on various aspects of mathematics teaching.

Conflicting interpretations were given by respondents to key terms such as "differentiation", "academic", "vocational" and "comprehensive", which shows the need to base operationally feasible indices relating to the school system itself on thorough conceptual analysis. Since most of the hypotheses relating to the school systems came into the general category of "selective" versus "comprehensive", the importance of analysing these terms should be apparent.

Equally open to misinterpretation were key terms describing teaching and learning methods. These were placed on a continuum from "discovery" to "drill and rote" methods. The school climate was measured by reference to "teacher-directed", "authoritarian-based" through to "enquiry-centred" education. None of these terms can be given unambiguous meaning purely in operational terms. The meaning of each can be clarified by reference to the cluster of general concepts and middle-range theories previously outlined. And is it possible to give each term the same meaning in different national contexts? For example, is the same meaning ascribed everywhere to "discovery" methods? One way of clarifying this term in order to establish measures of such dependent variables would be to relate the concept to the procedures described by Dewey in *How We Think* (1933). In short, what epistemological assumptions are made when measurements of "discovery methods" are drawn up? Or again, into which context of national norms should "authoritarian-based" education be placed in order to give the term unambiguous meaning and to ensure that the test has construct validity? Is its meaning derived from political theory or a particular epistemology?

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Science, Salience and Comparative Education: Some Reflections on Social Scientific Enquiry

Benjamin R. Barber

> ...it is our firm conviction that comparative education will find its most cogent justification and its most fruitful form if it develops along scientific, rather than along intuitive, lines.
>
> H.J. Noah and M.A. Eckstein (1969,p.x.)[1]

The legitimising power of the term "science" is apparently inexhaustible. This is in spite of the now recognised triviality and irrelevance of much of the "scientific" research undertaken by students of man and society in the last two decades.[2] One might have hoped that with this insight and with the bankruptcy of crude philosophical positivism, less scientised disciplines like education could bypass the unrewarding methodologism that has marked the fashionable, self-indulgent adolescence of too many of the developing humanities. While there is room in all of the humanities for increased rigour, more systematic, encompassing theory, and a growth of comparative analysis, these modest aims often seem to be secondary in the rush to overcome an imagined inferiority.[3]

The remarks that follow may seem to some simplistic and unoriginal, but so then is the version of science advanced by certain ambitious scientists to which the paper addresses itself. The comments fall into two parts: the first raising some basic problems in the philosophy of science; the second dealing more concretely with some specific difficulties that attend social scientific enquiry.

Many of the illusions and not a few of the problems of those who aspire to "science" have resulted from a fundamen-

tal misconception of its basic character. This common misconception identifies science with methodology and thus presumes that reliability, precision, and certitude can be attained by the dutiful application of specified methods and techniques - irrespective of the nature of the subject under study.[4] This approach to science, nicely depicted by the term "methodologism", has the peculiar feature of being remarkably unempirical-abstract rather than concrete, formal rather than substantive, manipulative rather than adaptive - and in this respect appears to resemble more closely the rationalist-deductive models of the pre-empiricist period of science (Hobbes, Descartes) than more recent empiricist paradigms. Methodologists view "progress" in research as a reflection of increasing methodological rigour rather than of better data or more imaginative theory. Noah and Eckstein thus report: "The contemporary movement ...toward sophisticated empirical work based on quantitative data and employing complex models of social theory and structure could not have been achieved without the closest attention to problems of methodology. Indeed, self-consciousness about methodology is the mark of modern comparative work." (Noah and Eckstein 1969, p.62).

But this has it backwards. Methods are whatever scientists use in their research, not monolithic performance standards. As Abraham Kaplan has written: "...methodology is very far from being a sufficient condition for scientific achievement ... even sound norms can be unwisely urged. Excessive effort can be diverted from substantive to methodological problems, so that we are forever perfecting how to do something without ever getting around to doing it even imperfectly." (Kaplan 1964, pp.24-25). Methodology is in fact nothing more than a *reconstruction* of particular modes of enquiry utilised by working scientists. It is neither self-evident, nor singular, nor static. It does not dictate what scientists in general ought to do; it reflects what particular scientists have in fact successfully done. "If you want to find out anything from the theoretical physicists about the methods they use," warned Einstein, "I advise you to stick

closely to one principle: don't listen to their words, fix your attention on their deeds." (1934, p. 12). If science is no more than what scientists do, then it becomes clear that there is no one correct methodology; only a series of distinctive logics-in-use for a variety of different types of enquiry. Biologists do not feel constrained to imitate astronomers, and astronomers hardly feel bound by the methods of physics; why then must aspiring social scientists insist on imitating natural scientists when they themselves share no one common methodology?[5] Aristotle's astutely empirical reflection remains pertinent, "Look for precision in each class of things only insofar as the nature of the subject permits."

The picture that emerges of science from the long, rich, diverse history of what scientists in manifold fields of enquiry have actually done is pluralistic, modest and open: not a set of rigid rules indiscriminately applied to unyielding subject matter, but an attitude of imaginative curiosity willing to try anything that may contribute to understanding the world, but simultaneously sceptical of everything it tries - especially of attitudes that smack of stasis, certainty and dogma. The spirit of science can be creatively emulated but the letter of science can only be toadishly imitated - to the detriment of human understanding.[6]

The methodologist may nonetheless want to reply: "Yes, science has its limits; it advances in strange, flukish ways, but ultimately it is grounded in reality, constituted by generalisation from reality, testable in terms of reality. As Freud makes clear, in the final passage of *The Future of an Illusion:* 'No, science is no illusion. But it would be an illusion to suppose that we could get anywhere else, what it cannot give us.'"

These objections can only be dealt with by treating four important issues in the philosophy of science: the problem of induction, the problem of the empirical basis, the problem of objectivity, and the problem of discovery. Properly understood, the complexities and dilemmas precipitated by these issues leave no room for complacent certitude or monolithic methodologism, for

they underscore the tentative and open character of science, and reveal clearly its essentially *a priori* philosophical bases.

The Problem of Induction

Since the publication of David Hume's *Treatise of Human Nature*, it has been widely recognised that mere contingency among events is not a sufficient warrant for making law-like assertions about their relationships, that there can be (in Russell's phrase) no generalisation from simple enumeration.[7] This means, quite simply, that induction - the critical process by which we get from the isolated instance in the perceptual world to the general, law-like ("causal") propositions of the theoretical world - is itself an *a priori* principle whose legitimacy can never be demonstrated in empirical *a posteriori* terms. This holds true for both statements of causality and probability.

Now these philosophical objections patently do not prevent working scientists from generalising, positing laws, making predictions and generally acting like scientists. But they do circumscribe the sort of claims scientists are likely to make about their generalisations,[8] and serve as a warning to uncritical aspirants who see in "science" a certain and single road to unshakeable truth. If we are, in the style of certain positivists, to call non-empirical principles "metaphysical" or "nonsensical" or "meaningless", then science itself is all of these.

Scepticism, as Hume well understood, may uproot philosophy and metaphysics, but it also undoes science. The man looking for absolutes will do better with religion; science is the art of the relative, the possible, and the may be.

The Problem of the Empirical Basis

The enterprising aspirant may here respond that, however troublesome the problems raised by induction, the key to science is not generalisation but verification, not the getting away from unique instances by formulating generalisations, but the testing

of generalisations (however formulated) by getting back to instances. It is from the world of sense perceptions, from the empirical basis of knowledge, that science receives its ontological self-confidence. Noah and Eckstein thus assert: "The data in the real world provide the objective evidence against which all hypothesised relationships must be tested. The observer of social phenomena too often is subjective. Only the data are neutral." (Noah and Eckstein 1969, p.99).

The trouble is that the empirical basis is itself an abstraction. A datum is a carefully selected facet of sensory experience answering to specific mental categories and reflecting what can only be called a theory of the world; it is not a *Ding an sich*, a self-defining, unambivalent thing. Stones, electrons, trees and men, no less than states, ideals, curricula and bigots, are artificial categories imposed by man through language on an otherwise inchoate, unknowable world.[9] Social scientists often recognise, in selecting *among* data, that values and purposes are likely to play a crucial pre-empirical role, but what they fail to perceive is that data in themselves are mere products of mind.[10] As Karl Popper has written: "The empirical basis of objective science has thus nothing 'absolute' about it. Science does not rest upon solid bedrock. The bold structure of its theories rises, as it were, above a swamp." (Popper 1965,p.111).

The methodologist argument thus moves from a rock of generalisation that turns out to be sand, to a stone foundation of data that turns out to rest on a swamp. Thence, the argument moves evasively back to the realm of the mind where it takes up the claims of "objectivity" - a final redoubt of methodologism.[11]

The Problem of Objectivity

Unfortunately, objectivity turns out for the scientist to be nothing more than a rather misleading way of talking about inter-subjectivity: a consensus reached among common observers as to the character of their perceptions. A datum, the outcome of an experiment, the tenability of a hypothesis is objective

only inasmuch as it secures the subjective consent of the community of investigators for whom it is relevant. This community, like any other, is limited in its membership (and thus represents something considerably less even than universal inter-subjectivity), parochial in its perceptions, and biased by its own conceptual ideological preconceptions ("paradigms") of how the world is ordered.[12] Social scientific communities, fixed on a subject matter that is intrinsically ideological, intentional and conceptual, are naturally even more vulnerable to these unavoidable constraints on their objectivity. In this respect, such communities are no different from non-scientific communities interested in the nature of reality (say a church, or even a political party); for their claims to knowledge of the nature of those facets of the world in which they are interested are also based on procedural and cognitive consensus. "*Anyone* who replicates our experiments following controlled procedures can demonstrate the existence of the neutrino", protests the scientist. "*Anyone* who opens his heart through prayer can demonstrate the existence of God", replies the priest. (Both God and the neutrino are invisible abstractions; indeed, God seems a good deal more tangible than the neutrino, and in any case has a larger inter-subjectively believing constituency).

Despite pretentions to objectivity, the ideological biases of many Western social scientists have been embarrassingly transparent. Democracy becomes the only "scientific" form of government, capitalism shares with science the "open market", models of development and modernisation turn out to bear a remarkable resemblance to the evolution of American industrial capitalism, etc.[13] Some sociologists of knowledge will want to see in every scientific community no more than a set of vested interests.[14] But even short of this, the notion of objectivity can never be supported from an appeal to the working practices of scientific communities.

"Say what you will", the aspirant may finally protest, "science unlike other communities *progresses*: it entails on-

going discovery of the world, consistently breaking loose from traditional conceptual paradigms in the quest for new and better ones." This leads us to the fourth and final question, the problem of discovery.

The Problem of Discovery[15]

Discovery is indisputably an integral, perhaps crucial component of science and scientific progress, but - unhappily for those seeking facilely reconstructed logics and easily imitated methodologies - it is also one of the least penetrable, most elusive facets of science. Discovery remains a mysterious, creative act that can no more be replicated than an act of the artistic imagination.[16] Arthur Koestler has portrayed the flukish history of astronomy under the telling title *The Slee·walkers;* and though the notorious apple rebounding off Newton's allegedly stimulated head has done little to elucidate Newton's mental processes, it is not at all clear that more satisfactory explanations will be forthcoming. Discovery remains a unique, individual act and ill suits the notion that science is synonymous with a set of readily simulated techniques. (It sometimes seems as if social scientists perceive in science a corporate enterprise where management teams following company rules will necessarily produce significant results.)[17]

The vagaries of scientific discovery have led a number of philosophers of science to distinguish a "logic of discovery" (that actually amounts to a "non-logic of discovery") from a "logic of verification" - viewing the former as a necessary but not sufficient condition that makes "progress" (however produced) truly scientific. Whether derived from creativity, dreams, illusions or mere arbitrariness, hypotheses and theories become scientific only to the degree that they are susceptible to verification (or, minimally, falsification: see note 8). But this sort of argument only brings us back to the initial problems of induction, data bases, and objectivity, away from which the appeal to discovery was intended to lead. Moreover, although a logical separation between discovery and verification

may be possible, the two act in confluence in actual scientific practice. Simplicity (parsimony), heuristic capacity, aesthetic appeal and the manner in which discoveries are generated may be much more important than immediate testability in establishing the credibility of a hypothesis.[18] In short, discovery is too deeply embedded in the whole scientific enterprise to be relegated to some pre-scientific preserve that can safely be ignored by the working social scientist.

None of these problems stands in the way of doing science. But they may discomfit those who think talking about how it is done and doing it are much the same thing. For they suggest that self-conscious, imitative methodologism is an unrewarding perspective from which to undertake social science enquiry.

Even when practised by the prudent, social science precipitates the most perplexing dilemmas. The remainder of this paper will take up some concrete methodological problems of particular relevance to cross-polity comparative analysis.

The problems that arise in the effort to develop analytic procedures for the investigation of political, social, economic and educational questions across societies and cultures include:

1. identifying and delimiting the field of enquiry which generally entails justifying its autonomy as an independent subject not wholly subsumable under or reducible to the generalisations of other subjects;
2. establishing a basis for control (where no experimentation is possible) through comparison;
3. finding comparable units of analysis across which data can be aggregated;
4. setting the limits of functionalism as a putatively "value-free" model; and, finally,
5. incorporating as central to the social scientific enterprise and to the resolution of each of the other problems noted here, convincing notions of salience.

The Problem of Definition

Like other social scientists, students of comparative education must ask whether it is "possible to distinguish clearly a problem in comparative education from problems in the economics of education, sociology of education, and so on. In other words, is there a clear definition of comparative education as a field of inquiry?" (Noah and Eckstein 1969, p.117). Certain studies seem satisfied to view education as a function of socialisation and thus as a sub-field of sociology,[19] and it is only with difficulty that education can be extricated from explanatory perspectives within which it is viewed as a cluster of dependent variables easily accounted for by more primary economic, social or political factors. An obvious danger of the new interest of comparative educationists in the functional relationships of educational and other societal variables is that "education" as a salient, autonomous term will be virtually eliminated.[20] A too catholic, overly subservient attitude may invite wholesale reductionism. To assert that education represents an independent field of enquiry is to assert that it encompasses varieties of thought and behaviour not accounted for (or less successfully accounted for) by other explanatory perspectives-that its primary concepts and key variables are (relatively speaking) independent. Too many ardent methodologists fail to see that their imitatively interdisciplinary approach to education delegitimises the very field they hope to make respectable.[21]

Political science (Aristotle's "Master Science") has, for example, in the hands of certain pseudo-scientists been reduced to sociology (democratic theory reduced to pluralist theory reduced to group theory), depoliticising and delegitimising it in the process; sociology has in turn frequently been reduced to psychology (group theory as interpersonal relations and social behaviour), psychology in turn to neurology (behaviour as the output of stimulus-response systems), neurology to molecular biology (nerves as amino acids) and molecular biology to quantum mechanics *ad absurdum*.[22]

The definition of any field, if it is to be rescued from the absurdities of reductionism, depends on the recognition that complexity leads to qualitative differences in levels of analysis and requires varying modes of analysis for an adequate explication of its several meanings. Education is or will be a significant field of enquiry not because it imitates other (less complex) sciences or develops explanations consisting of generalisations drawn from other disciplines, but because it chooses to focus on complex problems and issues of a primary character that have been neglected or are simply beyond the explanatory power of related fields. A substantive implication of this point of view is that what education does to the world will define the field more decisively than what the world does to education.[23] The formal point remains that definitions of education can neither be arbitrarily stipulated nor derived empirically from data (since they define what the relevant data are), but depend on notions of meaning and salience supplied by the investigator.

Control and the Problem of Comparison[24]

It is generally conceded that the social world does not afford the investigator the possibilities for experimentation and testing enjoyed by natural scientists, and that whatever control is to be had must come from comparative analysis. Where replication is precluded, compare. But whereas in experimentation, replicability can be controlled by carefully stipulated procedures, comparability depends on the interests and theoretic intentions of the investigator. Two things are alike only with respect to particular features responding to particular kinds of questions. Comparison is a form of classification through which objects can be categorised - not by intrinsic character (whatever that may be), but according to such salient properties as may interest the classifier.[25] Abraham Kaplan notes, for example, that it makes little sense to compare books by weight, but if it happens that our aim is to mail them cheaply or assault an ill-mannered librarian, weight may be the salient category after all. As Aristotle argued in his

Theory of Causes, we may define and classify things in a multiplicity of ways - by origin, form, substance and purpose, among others.

Now in comparative studies, the aim is to find salient questions around which comparison can be undertaken, ideally a set of "invariant points of reference" that would serve as universal categories. Particularistic categories will also serve, but the obvious danger is that allegedly "objective" points of reference drawn from one cultural paradigm will be used to distort the experience of another.

Some researchers have attempted to correct investigator bias by resort to operationism (or operationalism), a remedy no less unhealthy than the ills it is intended to cure.[26] The operationist tries to avoid conceptual biases by defining key factors in terms of easily measurable, quasi-"physical" indicators - i.e. by operationalising them. The factor dimension on "totalitarianism" is, for example, taken by R.J. Rummel to be defined by such indicators as "freedom of opposition, voting system (type of), and press censorship" (1968, p.207);[27] democracy can be identified with quantitative indicators such as frequency of election, voter participation and number of political parties; and, in general, concepts can be understood as mere labels for specified, observable indicators associated with the empirical basis of the relevant discipline. But aside from the problem of the empirical basis itself (which is defined by concepts rather than the other way round), the question remains what do these indicators *mean*?[28] Is voter participation a reflection of authoritarian manipulation, passive socialisation or autonomous choice? What, indeed, does it mean to vote? Putting a piece of paper in a box may, after all, be a religious ritual, an act of garbage disposal, a game, or countless other things depending on the purposes of the actors and the rules governing their behaviour. Ultimately, this line of questioning leads in a circle back to the query, "Is what these men are doing to be understood as 'voting' in the sense that we mean when we speak of a democratic electorate?", where the term we intended

to operationalise is needed as a pre-operationalised concept to explain what the operationalisation means.

Operationalism in the social sciences then is a reflection of the mistaken belief that the empirical basis of science, supposedly constituted by self-evident, self-defining data, has an existence independent of language and theory. It does not: concepts like totalitarianism, democracy, development, and modernisation are necessarily normative, and operationalising them only disguises the active conceptual element by burying it in the defining indicators themselves. The same is true for crucial terms in comparative education: Noah and Eckstein involve themeselves in a rather comical attempt to operationalise "other-worldliness" in their text, but even such straightforward concepts as literacy present difficulties. For though it can be operationalised in terms of reading ability (forgetting the problem of what it *means* to be able to read) and other observables, the term has significance only in the context of theories of human development and social modernisation - which theories condition and control the meaning and use of both the concept and its indicators.

Comparison remains an invaluable research technique, but it can only be abused if it is not recognised that the bases for comparison are brought *to* the data and are thus a function of the interests, values and intentions of the investigator.

Units of Analysis and the Problem of Data Aggregation

The problem of comparability is only half-solved when suitable factors for comparison across cultures are devised; for it is also necessary that the units of analysis across which comparisons are made be roughly comparable or the aggregate data upon which valid comparison depends will be wholly misleading. The difficulty is that the very categories employed to classify units of comparison reintroduce all those relativistic peculiarities of unique systems that the posting of "invariant points of reference" is intended to dispose of. To assume, for example, that the standard unit of analysis is the nation-state

is to impose upon that data a normative notion of nationality and its attendant features that may ill fit the newly independent tribal federation (e.g. Nigeria) or the ancient, occupied island (e.g. Formosa). A given unit of analysis, far from being a neutral or arbitrary form, entails social relationships, rules of collective behaviour and a *Weltanschauung* that profoundly affect the meaning and significance of the data in which a researcher may be interested. A researcher who sees fervent patriotism as a function of militant nationalism from the perspective of nation-states, may fail utterly to grasp the meaning of collective loyalty as it will be understood from the perspective of a village-commune.

These dilemmas are most apparent in what happens when data are aggregated and compared across nominally similar systems that are, in fact, as units of analysis, non-isomorphic. New York State and the Canton of Glarus in Switzerland are, for exarple, both nominally "democratic sub-systems of federal republics" but to compare aggregate political data on the two is likely to be extremely misleading; for while Glarus is in its relevant social structure a small, homogeneous, rural, participatory *Landesgemeinde* whose aggregate data can probably be justifiably interpreted as data about the individual citizen "writ large", New York State is a large, heterogeneous, urban, representative bureaucracy whose aggregate data are little more than abstract, statistical means averaged from radically disparate individual data. The male mortality rate for Glarus will presumably reflect the individual citizen's actual chances, but the same rate for New York State will be meaningless for individuals, whose chances will vary widely depending on racial, economic and geographic factors. Moreover, these individual data are likely to be of considerably greater importance for salient political issues like stability, violence, tolerance and change than aggregate rankings.

The Civic Culture (Almond and Verba, 1965), a much admired work among social science aspirants, relies heavily on aggregate

data taken from nominal national systems that are in certain ways non-comparable. Though some data are broken down by sex and education, none are filtered through the far more salient subcategories of religion (surely vital to the German statistics), race (central to the American and some of the Mexican and United Kingdom data), and economic status (critical to almost all the data of the five nations in the study). The result of these remarkably complacent biases is a set of rank order tables that are, descriptively, without predictive power and, normatively, nothing less than comic. The United States - (is it surprising that sociologists of knowledge are suspicious?) - comes out consistently on top in terms of civic competence, political participation, responsibility and those other traits that constitute the "value-neutral" but nonetheless extremely attractive-looking "civic culture".[29] Unfortunately, in the years since the data was tabulated, America has been wracked by assassinations, electoral demoralisation, racial violence, urban breakdown and general disorder far beyond not merely the data but the wildest nightmares of Almond and Verba. *The Civic Culture* may stand as a model to methodologists, but as an instrument of political understanding and scientific prediction it is a consummate failure. Who reads it today (who has ever read it?) to learn about the problems of the real political world? Like so much of the new political science, it is blind to politics.

The Problem of Functionalism

As some of the language of our conference working-paper suggests, functionalism is a prime paradigm among aspiring social scientists. Systems analysis appears to have two related advantages in comparative studies: it provides a neutral, abstract unit of analysis into which a variety of actual, substantive social groupings can be made to fit (seen in the right light, as Hobbes observed, *everything* can be viewed as a system); and it turns moral questions of a categorical nature into prudential questions of a hypothetical nature, simul-

taneously neutralising them and setting them in a context where they can be treated descriptively and/or deductively (Herbert Simon's approach in *Administrative Behaviour*, for example).

These putative advantages pale somewhat in practice, for despite its vaunted "value-neutrality", functionalism is pervaded by instrumental values such as stability (homeostasis) and efficiency ("good functioning" *per se*) that give it a static and politically conservative temper. Though it can account for change of a radical kind (in terms of systemic breakdown), it does so only with difficultv (rather as the Ptolemaic system accounted for elliptical orbit through the use of epicycles). Where equilibrium is the normal state, change will generally appear to be pathological; where efficiency is regarded as the only acceptable value-neutral utility, it will quickly come to play the role of real values and goals. Functionalism, finally, "banishes" values by disguising and renaming them.

At the same time, by refusing to deal frontally with categorical purposes and human projects, functionalism depoliticises its subject matter and trivialises its concerns - not by necessity (it remains a *formal* model) but apparently unavoidably.[30]

The Problem of Salience and the Tasks of Relevant Social Science

> *Die Wissenschaft fängt eigentlich erst da an, interessant zu werden, wo sie aufhört.*
>
> Justus von Liebig

Again and again, as the concrete problems of developing useful research methods for the investigation of social, political and educational questions are reviewed, the crucial importance of pre-empirical notions of salience is underscored. How the subject under investigation is to be delimited, what are to be understood as the subject's "data", which concepts, factors and units of analysis are to be used in the selection,

aggregation and interpretation of relevant data all depend on the investigator's perception of what is relevant, salient and valuable.

In addition to these epistemological considerations, salience in the social sciences has an ontological grounding: it is an intrinsic feature of all subject matter pertaining to man and his social relationships. All of those *a priori*, philosophical issues that the stern positivist hopes to dispense with in his scientific study of human societies turn out to be the very stuff of which those societies are constituted. "... The notion of a human society", writes Peter Winch, "involves a scheme of concepts which is logically incompatible with the kinds of explanation offered in the natural sciences." (1958, p. 72)[31]

This is not to say that no explanations of any kind are possible. The argument for a relevant social science is neither an obscurantist assault on science nor an irrationalist rejection of knowledge. The point is rather, in Lucien Goldmann's words, to understand that "the human sciences will have to be philosophical *in order to be scientific*" (Goldmann 1969, p. 22). There is nothing scientific about buying rigour with irrelevance, about searching in the brightly-lit foyer for items lost in the dim, foreboding attic, because - as the fool explained - the light is so very much better in the foyer. The social scientist seriously interested in understanding will proceed cautiously, fully aware of the subordination of methodology to subject matter and the necessary dependence of useful enquiry on the meaningfulness of questions posed rather than on the number of answers obtained.

Alfred Cobban once said of political science that it appeared to him to be "mostly a device invented by university professors for avoiding politics without ever achieving science". Let the aspirants beware that comparative education does not become a device for avoiding education without ever achieving significant comparison.

NOTES

1. I tend to pick on Noah and Eckstein in this paper, but that is only because their attempt at social science is the best and most prudent I have come across in the educational field.

2. Racial strife, urban decay, ecological disaster and an Asian land-war figure nowhere in the analyses or predictions of American social scientists in the fifties and early sixties.

3. Noah and Eckstein thus seem concerned about the "'pecking order' of academic respectability" (1969, p.117), while G.Z.F. Bereday speaks of the "hope of raising education to the status of a research field or even discipline..." (1967).

4. Methodologism had its beginnings in the proto-positivist efforts of J.S. Mill (*A System of Logic*) and Auguste Comte (*Cours de philosophie positive*) to develop a scientific methodology for social studies, and is sustained currently by such advocates of the unity of science as Carl Hempel (1965) and Ernst Nagel (1961).

5. In Kaplan's terms: "What is important, I believe, is that behavioural science should stop trying to imitate only what a particular reconstruction claims physics to be." (1964, p.11).

6. As John G. Gunnell convincingly argues in his paper "Deduction, Explanation, and Social Scientific Inquiry", "The first lesson that social science might learn from natural science ... is the value of devotion to the autonomy of inquiry and a passionate concern for substance of explanation rather than a fixation on the form of explanation." (1969).

7. For a discussion of recent problems of induction, see Hempel 1965, pp. 53-81, and the two special issues of the *Journal of Philosophy* on "The New Riddle of Induction" (April/May 1967).

8. Karl Popper argues that the problem of induction leaves scientists no alternative but to abandon the goal of positive

proof in favour of the more modest aim of ongoing disconfirmation; a single instance, however often repeated, can never establish a generalisation, though it is sufficient to falsify it. The essence of science is thus falsification rather than verification - an inversion of the positivist argument with major consequences for social science. See *The Logic of Scientific Discovery*, 1965, especially Chs. 1, 2 and 4.

9. Kaplan writes, "Whether a particular way of conceptualising problems yields solutions for them is a question of *fact* ... what is at stake here is the role of values, not in our decisions where to look but in our conclusions as to what we have seen." (1964, p. 384).

10. The world of pure perceptions is presumably extant only for the passive infant - a world of myriad shapes, colours and sounds that are indiscriminately imbibed as a meaningless *mêlange*. The child learns truly to *see* only with the development of basic concepts like self-and-other and its more complex derivatives.

11. "Quantitative methods applied to data handling and testing ... help maintain objectivity", write Noah and Eckstein (1969), pp. 99-100.

12. This view of science has been convincingly advanced by T.S. Kuhn (1962). Kuhn's historical and "contextualist" arguments are intended to illuminate the actual sociology and practice of science rather than the abstract logical reconstructions offered by philosophers. Other contextualist arguments can be found in Stephen Toulmin (1958) and Michael Scriven (1966).

13. On the ideological biases of pluralism and other "neutral" social science constructs, see P. Bachrach (1967), W.E. Connolly (1969), and C.A. McCoy and J. Playford (1967). The *locus classicus* for such works is the still pertinent study by C. Wright Mills (1959).

14. See, for example, Jürgen Habermas' *Knowledge and Human Interests* (1971).

15. A controversial line of argument not pursued here raises the question of whether progress can be said to exist at all in the sciences, other than as a self-serving myth perpetuated by scientists. Kuhn suggests that it results in part from "history written by the (scientific) powers that be", (1962, p.166) - i.e. by those who win the struggle for paradigmatic hegemony among competing scientific communities.

16. Peter Winch cites Maurice Cranston's insight that "to predict the writing of a piece of poetry or the making of a new invention would involve writing the poem or making the invention oneself" (P. Winch 1958, p.94). Similarly, to replicate the logic of discovery would effectively mean *making* the discovery.

17. "Social Science Gains Tied to Big Teams of Scholars" proclaimed a *New York Times* headline (16 March, 1971) above an article discussing a self-congratulatory study of "progress" (see note 15) in social science by team researchers Karl Deutsch, J.R. Platt and Dieter Senghaas.

18. James D. Watson says of his discovery of the double helix structure of DNA: "The structure was too pretty not to be true" (1969, p.134).

19. This seems, for example, to be the premise of Hector Correa in parts of his *Quantitative Methods of Educational Planning* (1969).

20. Other fields are also being traumatised by the attempt to "go interdisciplinary" and become "scientific". A new journal in history (*The Journal of Interdisciplinary History*) has been started, leading some historians in wonder whether history will not ultimately be "cannibalised" by other disciplines.

21. Bereday notes that "fear has been expressed that this 'treason' from the notion of cross-disciplinary approach might imply the entire disappearance of comparative education as a field" (1967).

22. For a cogent defence of holism against the reductionist perspective, see M. Mandelbaum's paper "Societal Facts" (1955).

23. For some ambitious social scientists, crude determinism in the form of traditional environmentalism is regarded as the quickest, surest road to a science of society. Such students will see in education only a dependent function of socialisation (see note 19).

24. The term "comparison" has itself been defined, redefined and jargonised until it no longer has any clear meaning. A. Przeworski and H. Teune (who seem intent on stipulating their way into the very citadel of science) have tried to define it as a mode of enquiry "in which the influence of larger systems upon the characteristics of units within them is studied" (1970, p.74), but the remarks that follow apply to the more generic term.

25. Peter Winch puts the matter this way: "Two things may be called 'the same' or 'different' only with reference to a set of criteria which lay down what is to be regarded as a relevant difference... When one is dealing with intellectual (or, indeed, any kind of social) 'things' ... their *being* intellectual or social, as opposed to physical, in character depends entirely on their belonging in a certain way to a system of ideas or mode of living." (1958, p. 108). A.R. Louch makes many of the same kinds of arguments in his *Explanation and Human Action* (1966).

26. See Kaplan's discussion of operationism in *The Conduct of Inquiry* (1964), pp. 39-42.

27. I have treated the concept of totalitarianism in depth in "Conceptual Foundations of Totalitarianism" in *Totalitarianism in Perspective: Three Views* (1969).

28. "Indicators of what?" asks Giovanni Sartori. "If we have fuzzy concepts, the fuzziness will remain as it is. That is to say that indicators cannot, in and by themselves, sharpen our concepts." (1970, p. 1046).

29. Try telling an American Chicano or ghetto resident or welfare

recipient that Americans are involved "in political affairs", possessing a "sense of competence to influence the government", that they "have a high degree of pride in the political system", and that "their attachment to the political system includes both general system affect as well as satisfaction with specific government performance". (G.A. Almond and S. Verba 1965, pp. 313-314).

30. For a radical contrast between a system paradigm and an economic-historical model see G.A. Almond (1960) and J. Moore, Jr. (1967).

31. Elsewhere, Winch writes: "When we speak of the possibility of scientific prediction of social developments ... we literally do not understand what we are saying. We cannot understand it, because it has no sense " (1958, p. 94).

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Between the Micrometer and the Divining Rod: Methodologies in Comparative Education

Reginald Edwards

It has often been remarked that there is no single, unified approach to comparative education that will be equally satisfactory to all who call themselves comparative educators. Our working paper suggests a broad conceptual distinction between the "more qualitative, historical-philosophical approaches" and "those which are more ... self-consciously scientific", i.e. quantitative and empirical. The two approaches, so labelled, represent the extremes of the spectrum of the diverse and fragmented ways in which we seek to describe, explain and understand education as found in many cultures, societies and geographical regions of the world. Even within the empirical and quantitative approaches our measuring instruments are of varying precision, ranging all the way from the divining rod to the micrometer, a state of affairs not unknown in other social sciences at different times. In those other fields the distinction between the methodologies of their major approaches have been considered divisive; it is urged that we examine the various social sciences themselves the better to understand and avoid such fissiparous tendencies in our own subject. The study might also be instructive in showing how methods currently being developed in the various social science fields could be of direct application in the comparative study of education and educational systems. Accordingly, this paper sets out to deal with developments in psychology, related in turn to methodological approaches of a divisive nature. It seeks also to discuss some methods which could prove of value to comparative education, and possibilities for future development. Of necessity it will be brief, and hence highly selective in the elements and events recounted, so as to make the points of similarity for com-

parative education more directly obvious.

Psychology emerged from a parent discipline of philosophy, more particularly from epistemology. It claimed to have unique methods for the solution of the problems it proposed to elucidate, that is for the problems of immediate experience. Psychologists were trained in introspection, the observation, description and analysis of their own behaviour and inner states, including consciousness. Early division took place between the structuralists, under Titchener, and the functionalists, following Angell, Dewey and Carr. Watson, who was a student of the two former and a colleague and fellow student of the latter, both upset and broke away from the classical position in psychology, by first requiring a different approach to consciousness and eventually by denying consciousness as a field of study and excluding mentalist terms as being representations of constructs about consciousness. Whilst not neglecting human subjects, it was to rats that Watson turned his attention. He was fortunate that he was located in Chicago, which introduced him to Donaldson and the Donaldson (later Wistar) strain, and to three predecessors who had used rats there in psychological research.

Until this time the centre for psychological study and research had been located in Europe. Major influences upon psychology came from such individuals as Wundt, Pavlov, Galton and Spearman, each an experimentalist in his own right. Other, less experimental, influences were due to Freud and Binet, both clinicians, skilled observers given to theorising or reflecting upon their observations. From Wundt and Pavlov derives the experimental approach of the control of the conditions of behaviour, the better to observe the consequences and to establish causal relations. From Galton and Spearman came developments which led to ideas of regression and correlation and the genesis of ideas about factor analysis as a tool of correlational psychology. Here were no dependent and independent variables, no causal relationships, though it was felt that study of the many relationships found in nature, and their organisation, might help to influence the course of events to

which nature, human and otherwise, might contribute.

Psychology of later years has tended to harden the distinction between the two approaches, or disciplines, of scientific psychology into "experimental" and "correlational", or "process" and "structure" in terms of the areas of their endeavours. The development by Yule of the partial correlation coefficient in 1911, at the time of Watson's experimental breakthrough, offered to the correlationists a method of mathematical control of variables at least equal to the experimental control of their coleagues. Yerkes in 1913 wanted to reserve the term "comparative psychology" for a comprehensive correlational psychology, involving children and adults, humans and infra-humans, normal and abnormal subjects, social groups and civilisations, and in particular correlation across species. Unfortunately, neither the partial correlation coefficient of Yule nor Yerkes' defence of comparative psychology could bring together the two parts of psychology. Comparative psychology soon degenerated into the experimental psychology of the white rat and thereby lost the power of the correlational discipline, and in this the work of Watson gave it a great impetus. It is now recognised that much of the impetus was in the wrong direction. Watson had misinterpreted Johannsen's work on the heritability of continuous variation and concluded, wrongly, that the vast majority of the variations of organisms were not inherited. This led to a behaviouristc emphasis which sees individual events as having meaning only insofar as they represent a whole class of events. Individual differences are only error deviations.

The 1920s saw the influence of the Gestalt psychologists. Theirs was an experimental psychology, largely perceptual, but with some search for constancies of a general nature. Even the differential psychologists were concerned with a search for something invariant, or approximately so: the intelligence quotient. The debate engendered by its supposed constancy provoked a series of longitudinal, developmental studies. The search for a more rigorous underpinning for such measures of

intellect was pushed forward by such notable figures as Spearman, Burt and Thurstone. The 1930s saw the decline of Watsonian behaviourism, partially under the attacks of the Gestalt psychologists, but led to the emergence of new theories of learning based upon the performance of the now ubiquitous white rat. The *Seven Psychologies* (Heidbreder, 1933) gave way to *Contemporary Schools of Psychology* (Woodworth, 1948). It was at the end of this decade that the series of arithmetical operations for which Fisher had apologised in the twenties began to influence psychological (and educational) research. Analysis of variance "made the experimentalist an expert puppeteer, able to keep untangled the strands to half a dozen independent variables" (Cronbach, 1957). Thurstone's development of the powerful tool of factor analysis restored the balance somewhat. It permitted the correlationist to organise and classify vast masses of data. In an area "where nature pulls a thousand strings" it made him "equally an expert, an expert in figuring where to look for the hidden strings". (Cronbach, 1957). The earlier computational simplicity of Fisher's methods gave an advantage to the experimentalists; the computer, for its part, has speeded up and improved the work of the correlational analysts, approximations and short cut methods and solutions no longer being favoured. Further development in both areas has come from the work of Cattell, Horst and others, at the price of acquiring increased sophistication in matrix algebra and the handling of data matrices of all kinds. According to Cattell, the future of psychological research remains with multivariate, experimental psychology (Cattell, 1966).

Psychologists have long appeared to be concerned about their status as scientists. Pronouncements have ranged from a frank declaration that psychology is a biological science, or a social science, to Heidbreder's (1933) famous comment, "There is not enough fact in the whole of psychology to make a single solid system". In its earliest phases psychology had leaned heavily on its presumed relationship with physiology, through such physiologists as Wundt and Pavlov. There has always been a ten-

dency to borrow some prestige from physiology by suggesting physiological explanations for phenomena not yet amenable to psychological theory. In the present day of implanted electrodes and electrical control of animal behaviour some psychologists may talk confidently to some physiologists. Present-day status symbols in psychology are mathematical ones; the prestigious journals are mathematical and statistical. Between the earliest and the latest phases, notably from the 1930s to the 1960s, psychology tried to improve its methodology and scientific status by system building or by model building.

Foremost in such endeavours were Spence (1944) and Hull (1943). Spence considered the elements of stimulus and response and possible relations between them. $R - R$ is an obvious correlational psychology, $S - S$ a cognitive learning psychology of signs and significates, $R - S$ a Skinnerian operant (reinforcement) psychology and $S - R$ a learning psychology, based on association, which permitted the elaboration of a complete system: Hullian learning theory. The way had been prepared by the physicist Bridgman and operational definitions ("the concept is synonymous with the corresponding set of operations") and Carnap's use of dispositional predicates which permitted discussion without the necessity of formulating the necessary laws at an early stage. It was Hull who built up a system, from postulates, theorems, lemmas, to testable propositions. Consider, for example, the hypothetical learning factor (or construct) of habit strength. Hull could postulate that its strength would depend upon a certain number of conditions or variables, the number of reinforcements given (N), the magnitude of reinforcement (W), the time of delay of reinforcement (T) and the interval between the onset of the conditional stimulus and the occurrence of the unconditioned stimulus (T'). This could be presented in the form of a single functional statement,

Habit strength is a function of N, W, T and T', or

$$sHr = f\ (N, W, T, T').$$

By further examining each variable, and assuming that habit strength had a maximum value (M') to which each successive reinforcement added a decreasing amount he could provide several linking equations:

$$sHr = M^1 \ (1 - e^{-in})$$
$$M^1 = M_\bullet \ (1 - e^{-kw})$$
$$M^1 = M_\bullet \ e^{-jt}$$
$$\text{and } M^1 = M_\bullet \ e^{-u \ (T^1 - c)}$$

or, in total,

$$sHr = M_\bullet \ (1-e^{-in}) \ (1-e^{-kw}) \ e^{-jt} e^{-u(T^1-c)}$$

This kind of building up of intervening variables, first as dispositional predicates, then as broad functional relationships, and finally as equations requiring only the establisnment of ultimate parameters, allowed Hull to erect a system linking together his major constructs of motivation, reinforcement, habit strength, drive state, reaction potential and oscillatory inhibitory potential with final objective determination of the effects in terms of response latency, amplitude of response or resistance to extinction. Individual differences were accounted for in the system through oscillatory inhibitory potential and thus went some way to retaining these individual differences as non-error components. Hull's energy in research, and his extremely capable disciples, made him an "opinion leader". His axiomatisation of psychology, if not leading to an experimental cul-de-sac, was at least premature. He had hobbled psychology with a philosophy of physics, uncritically accepted as philosophy of all sciences. For Hull it made predictions from theory both possible and objectively determinable. Non-vindication must lead to theory refutation or theory modification. Other biological sciences, notably genetics, escaped such axiomatisation, despite the efforts of Woodger and others.

In one way the strength shown then has been a source of continuing weakness in psychological research among graduate

students: the engendering of a belief in the critical experiment. Two other facts have contributed. In the fist place the supposed superiority of the hypothetico-deductive approach to scientific research (and hence *the* scientific method) was a point of view sedulously cultivated by textbooks of methods of experimental research. In the second place the nature of the PhD committee, in which members bow to the cult of the textbook, shows students the "wisdom" of the single critical experiment. Tukey, Cattell, Stevens, Bereiter and others have all assailed thes "conspiracy" to push data collection "under the rug" as it were, to ignore replication and to substitute a single statistical test of significance, and a failure to match experimental techniques to the demands of the problem. In the early stages dispositional predicates and taxonomic classifications might well be in order; one does not need a sledgehammer to crack a nut. At a different level the types of data transformation practised by Stevens might render data more susceptible to meaningful interpretation. At the higher levels still, dimensional and criterion analysis become important, and something in the nature of the basic data relation matrix, in as many dimensions as required, becomes increasingly necessary.

Finally, from the field of psychological measurement some important trends might be noted. In the early days of test construction Binet validated his test items, and introduced a dimensionality by requiring that, on a given item, there should be an increasing number of children successful with each increase of chronological age. Terman extended this in his work by first contrasting the performance, on many test items, of a group rated by teachers as of supe ior ability with the performance of a group reported to be inferior. Davis later showed that maximum discrimination could be effected by utilising the top and bottom 27 per cent of the distribution. This method was extended by factor analysis by using a dichotomous criterion, such as neurotic - non-neurotic, and finding the factor loadings of tests

of many kinds applied to a total, presumably normal, population. This became a method of determining metrics by the use of most dissimilar populations. From another angle the *t* test of significance may be regarded as a test of how large a difference is not a difference and how small a difference constitutes a real (replicable) difference. The psychophysical determination of limens may be similarly regarded as finding differences in a homogeneous (most similar) population.

To continue with one other aspect of psychometric development, attention might be called to the "structure of intellect model" which Guilford has proposed as a result of his numerous factor analytic studies (Guilford, 1967). He concludes that his "mental block" demonstrates 120 abilities, and may be represented by three axes: (1) the operations we perform upon (2) material contents of various kinds, to yield (3) products of different levels. The products are in the form of units, classes, relations, systems, transformations and implications respectively. It is not mere coincidence that the first five of these are crucial in the examination and treatment of data. Units and classes have long been with us. Spearman stressed the importance of relations, and much data handling still stops at this level of looking for relations among data observations. Rapaport, Bertalanffy, Boulding and others have drawn attention to the systems level, and a recent report (Bindra, 1971) has mentioned the need for training in systems research as a basic requirement for the doctoral degree in psychology in the future. As for transformations, it has often been ponted out that there is no sanction, other than history, for many of our units of measurement. Einsteins's rejection of the Newtonian units led to breakthrough in modern physics. Fechner sought the right transformation from physical to psychological units. Perhaps Stevens' work on data transformations will be more fruitful still.

To turn now from psychology as a biological/social science discipline to comparative education, a new note may be introduced by referring to a book by Przeworski and Teune, *The Logic of*

Comparative Social Inquiry (1970). Whilst making no explicit reference to comparative education it has great import for our discipline. It is a two-part book, dealing with theory and measurement. In it, the authors suggest that comparative enquiry should proceed from the idiographic to the nomothetic stage and they indicate two research designs (tactics) for initial work: "the most similar systems" and "the most dissimilar systems" approaches. As I have indicated elsewhere, (Edwards, 1972):

> The major thrust of the book is towards a restriction of the notion of comparison. The authors make a telling point that cross-national studies are not necessarily comparative. Social science research is, or should be, directed towards explanining the variance of a dependent variable in terms of one or more independent variables. As long as the same independent variable explains the same proportion of the variance in different countries, we have a general explanation across systems, even though we appear to have introduced a cross-national dimension. Only when residual variance has to be explained by invoking separate explanations for different countries does the research become comparative. As they so succinctly say, "Specific systems are treated as labels for unspecified factors rather than as limits of generality, and (that) equivalence of measurement statements is treated as a matter of the validity of inferences rather than of the nature of indicators." Their work is therefore a fairly rigid application of Occam's Razor within social science theory, and leads to the examination of equivalence statements before accepting systems' (national) labels as explanatory concepts.
>
> Starting with a general statement of $D = f(I_1, I_2, I_3, \ldots I_n)$ they can expand this into a verbal statement, "In all systems political mobilization depends upon I_1 and I_2; in systems with high S_1 it depends upon I_3; in systens with low S_1 it depends upon I_4; in systems with low S_1 and high S_2 it depends upon I_5, but in Poland it also depends upon I_6." (The proper name of the system comes last.) This involves a program of stepwise multiple regression, though it is developed in chapter four in an almost algoritimic manner. There is a marked resemblance of this kind of statement to the explanation of a standard score on a test in terms of the sum of factor scores, using common factors, group factors, specific factors and error of measurement. Those with a bent towards cultural anthropology and personality theory may see a parallel with, "Every man is, in certain respects like all other men, like some other men and like no other man" (Kluckhohn and Murray).

If we may agree that the act of comparison depends upon the perception of similarities or differences, as I have suggested on another occasion (Edwards, 1970), then the contrasting group approach of psychometrics is the natural source for a parallelism for comparative education. I would locate Przeworski and Teune's "most dissimilar systems" within this frame of reference. For in their general statement,

$$Y = f(I_1, I_2, I_3, \ldots I_n)$$

the parallel to Hull's

$$aEp = f(N, W, T, I')$$

is quite evident. If we wish to profit from this parallelism we should perhaps make inquiry by means of dispositional predicates and intervening variables, with extension via Noah and Eckstein's hypotheses so as to derive the form of subsidiary and linking equations for I_1, I_2, I_3, etc. We could, of course, take the "great leap forward" and rush straight to multiple regression, as proposed and attempted in the IEA mathematics study. However, to judge from other social science experience there is one great drawback to this step - different combinations of a limited number of different variables explain about the same proportion of criterion variance. If we are prepared to live with rival theories, each equally plausible in terms of a few independent variables in their explanatory power, and utilise our own powers of "tolerance of ambiguity", we might well profit from the exercise, since each group of variables, hence each explanation, might provoke further research.

The foregoing paragraphs indicate something of a strategy which might be followed. We begin with the postulate that not all comparative educators have similar backgrounds, similar interests, or similar research skills, but there is room for all. There is room for an analysis of our dispositional predicates and for better [illegible] of data, better non-numerical tasks. More suggestions for indicators are needed; complexity may be reduced later by [illegible]. There is an ever greater need for

a variety of dependent variables related to educational systems and procedures. However, we are committed to some mathematical treatment of the crude data we already possess. Until we can find more useful transformations, or more useful indicators, Farrell's suggestions about data scaling are probably the most useful (Farrell, 1970). Multiple regression techniques, though as we have seen may not be too promising, should be applied, as should factor analysis of data matrices, in a search for classifying factors. Rather than putting all our eggs in one basket a long-term or long-range strategy for someone with mathematical sophistication would probably involve Cattell's "Basic Data Relation Matrices" (1966) and Luce and Tukey's "Simultaneous Conjoint Measures" techniques (1964).

Like other disciplines we may have our 'lucky strike' and find some relatively invariant entity, analagous to per capita GNP or even the unfortunate, now passé, IQ. Round such an invariant we might be able to anchor much research effort for a subsequent decade.

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PART 2

Some Theoretical Methods for Comparative Education

Introduction

Reginald Edwards

If the first objective of the conference was to consider in a fairly general way what was implied by methodology in comparative education, the second objective was clearly to look at work in education and other special fields of enquiry, such as economics, political science, psychology and sociology, which impinged upon and either utilised or might utilise a comparative approach. From this it would appear that two kinds of interdependence would need to be examined: the interdependence of modes of enquiry and the skills and background of the enquirer on the one hand, and the interdependence between social, political, economic and educational factors or variables on the other. It was hoped that it would be possible during the conference to discover, mutually, how far we have made progress towards such studies of interdependence, and how far models have become available, or are likely to become available, which will facilitate such an enterprise.

It is impossible to make an absolute separation between the two kinds of interdependence we have suggested, though much discussion focusses upon the latter. However, it must always be borne in mind that the background of the enquirer constrains him to follow the kinds of approaches within which he feels most comfortable. These tend to be the approaches of the more substantive, or earlier, disciplines in which he has been trained. Not only the approach, or perspective, to use Kazamias' terminology, is so determined but the kind of analogies he uses and hence the models he sets up, are continuing determining tendencies of how comparative studies in education are regarded. Recent evidence suggests that with increase of knowledge a single (possibly paradigmatic) perspective is not enough; physicists become chemists and vice

versa, some become biologists, biologists become psychologists and some psychologists become sociologists, and from time to time some economists, sociologists and psychologists feel constrained to function as comparative educators. We are no longer the prisoners of our early training. Nevertheless it does not mean that within discussions in comparative education we can shed all previous conceptions, and the effect of all previous experience. Hence schismatic tendencies are not entirely absent. In the "fusion-fission" context for comparative education, does the balance tilt more to a common approach or to divisive tendencies?

In looking at such developments in comparative education, it becomes somewhat onerous to decide at what point the infusion of some modicum of theory into our methods of work and study becomes sufficient to merit the appellation of theoretical methods. Perhaps the earlier European emphasis outlined by Schneider as the "systematic study of foreign education systems" does not quite meet the occasion. An individual operating in this tradition was expected to have a thorough knowledge of his own system of education within the total environment of the country, its language, history, culture, economics and politics, and then to seek a matching knowledge of one or more other European countries. This would have provided a rough correspondence between countries in terms of the stage of development reached economically and, perhaps, politically and socially, but this would have been true only because of their European location. In certain respects Bereday (1967) explicated this approach when he gave examples of "juxtaposition" as a part of the methodology of comparative education using horizontal and vertical textual juxtaposition. From this he expected that a hypothesis would be derived inductively. Schneider himself later (1966) suggested that substantive research should be undertaken country by country with respect to the self-education capability of that country. Today it would be said that he has recognised one of the problems of education which might be resolved by a comparative study and was, in fact, proposing a problem approach.

Kandel (1933) saw education in the major European countries within a national context and imputed to them national characteristics. His approach rested on two elements of theory: "Education must exist for some purposes or ends", and "Educational systems are dominated by national ends". For Kandel the conduct of the comparative enquiry was dominated by the purposes of the enquiry. He, himself, preferred to think of comparative education as "a continuation of the study of the history of education into the present". In his paper Halls has suggested that some comparative educators have become specialists in the contemporary history of education in countries other than their own. Kazamias (1961) concluded that Kandel's methodology has three major purposes within a general historical perspective:

1. reportorial-descriptive,
2. historical-functional, and
3. melioristic.

These formed a blend of "what is" and "what ought to be" in education. Kazamias insisted that these were logically and methodologically distinct and must be kept so. More recently, Coleman (1964) has seen an essentially similar distinction between normative and descriptive models, though he saw the debate confined to economic theory and having little parallel in other social sciences. Descriptive models describe how the economy functions, normative theory tells how the economy should function to meet some ethical, economic goal as in welfare economics which attempts to provide a theory by which economic decisions can maximise some overall "social welfare". From this there has derived a second kind of normative approach as in linear programming models and in games theory, both of which show how to maximise or minimise certain ends, not how people behave. People are not involved in such theoretical formulations and "thus the theories can by-pass behavioural laws which present a formidable obstacle to normative or goal-directed theories in other social sciences". Coleman suggested that "in this class of semi-normative theories are some directions which might prove fruitful for social sciences other than economics".

Perhaps the first self-consciously directed method for the study of educational problems in a comparative perspective was that published by Bereday (1964). This was the well-known four-stage approach: description, interpretation, juxtaposition and comparison. The latter two steps involved establishing similarities and differences within the societies and then performing a simultaneous comparison. The step of juxtaposition was most clearly delineated by Bereday (1967), demonstrating not only the use of textual juxtaposition in the inductive suggestion of a hypothesis but also a similar use to throw light upon a hypothesis already formulated. Even so, the description of the process was far from complete, and one could not be sure that the advocated method was being followed. In the language of programmed instruction, the "step size" was too large.

Almost immediately, attention was drawn to the "problem approach" to comparative education (Holmes, 1965). In some respects there was nothing new in looking at the problems of education. Perhaps it is something that educators have always done but with varying degrees of sophistication, from the exceedingly simple to the highly complex. In one way the problem approach was highlighted with the appearance of *A History of the Problems of Education* (Brubacher, 1947) which sought to illuminate contemporary problems in the light of their historical antecedents and their historical development, though this does not imply a single developmental model for all problems. For Brubacher the development, or more correctly the ordering, was from the aims of education, the major social forces such as politics, nationalism and economics that have determined education, the philosophy and psychology of education, and their combined effect on the curriculum and its pedagogy, religious and moral education, to the evolution of educational institutions and systems. For Holmes, case studies were utilised to illustrate the problems. The method of identification of the problems was never clearly specified, nor was it clear whether they should be stated on an *a priori* basis, nor how they should be related to a theoretical scheme. It was appropriate that familiarity

with one system of education would recognise dysfunctionality in another and show incongruities of the latter in terms of the former. Much reliance was placed upon the analytic philosophy of Popper in the examination of the problems.

The problem approach was followed by the editors of the *World Year Book of Education*. Here, the joint editorial board, drawn from London and New York, had the responsibility for identifying the problem and attempting to establish some guide-lines (parameters?). The editors were responsible for selecting the various contributors, but each author was left free to write from his own experience and viewpoint. It has never been possible to commission research specifically as the basis of an article for such a publication. It would appear that the best *Year Books* have dealt with areas in which substantive research had already been carried out, or for which research institutes existed, that is, for precisely those problem areas which had so concerned society as a whole that public and private funds had been made available for their study. Even so the problem approach is capable of further extension and improvement. It should involve the search for dependent variables in the problems, and for the relevant independent variables which are not just contemporaneous events but "genotypical" variables that can be used in explanation. Psychologists, for example, have been particularly prone to treat "culture" as an independent variable, in a vague way, and then attempt to shuffle around the result they obtain. A recent review (Roberts, 1970) of cross-cultural psychological research into organisations came to the conclusion that 46 per cent of the studies were discussions, reviews, surveys, and 54 per cent could be classified as empirical research, without however making a clear distinction amongst the variables located.

The two works previously alluded to (Bereday 1964 and Holmes 1965) both followed very closely the 1963 Hamburg conference on "Relevant Data in Comparative Education". That meeting had tried to "identify and classify background data as they bear upon the formulation of policy and its outcomes". It was at much the same

time as Foshay's work on *Educational Achievements of Thirteen-Year-Olds in Twelve Countries* (1962), whose successor, the *International Study of Achievement in Mathematics* (Husén, 1967), was already at the planning stage. In these works it is clear that achievement had been seen as the dependent variable, and the search was for independent variables to account for the variance in scores on achievement tests. The major directing influences in these studies were psychometric - the comparative aspect turned out to be less amenable to treatment in such a demonstrably psychometric model. The 1963 conference divided itself into three groups of participants and the report of the third group still provides excellent reading. One quotation is perhaps most apposite: "The different social sciences which are interested in education make more and more use of international comparisons. In all these researches the role that can be played by comparative education (as a synthesizing discipline) is essential. This presupposes that the *concepts and instruments of analysis* (my italics) applicable to education which are drawn from the various disciplines should be compared with a view to closer co-operation between them." (Holmes and Robinsohn, 1963.) It forms a worthy preface to one of the proposals for the present conference: "to discuss and assess the contributions of qualitative and quantitative studies to comparative education".

The search for relevant data and its quantification beyond mere head-counting statistics may have contributed to the choice of the title of Noah and Eckstein's book, *Toward a Science of Comparative Education* (1969). The emphasis of their approach as being *towards* a science, rather than being completely paradigmatic of physical science approaches of an earlier day, was ignored by critics and the work has often been described as pretentiously scientific. What they did say was that the characteristic methods of the field of comparative education should be specified no more rigorously than the derivation of these methods from those of the social sciences. The territory of comparative education was defined by them as the intersection of the social

sciences, educational studies and the cross-national dimension. The hallmark of work properly claiming to be comparative education was that it fitted neatly within that intersection. They saw that the potential of the field lay first of all in the promise of extending the generality of propositions beyond the confines of a single society; secondly, in the provision of an arena where propositions tenable only in a cross-national context could be investigated; thirdly, as a field of interdisciplinary work; and, finally, as an instrument for planners and policy makers.

What Noah and Eckstein sought to do was to ensure that comparative educators, at least, did not attempt to treat all aspects of society at the same time since "problems in comparative education cannot profitably be expressed holistically in terms of relationship between education as a whole and society as a whole. Rather, they must be expressed in terms of some specific aspect of education and some limited sector of the total societal context." Their work can be linked to the problem approach by their very next sentence: "consequently among the common problems comparative education is concerned with, are the schools and economic development, the impact of different ideologies on education and class structure and education and the formation of social and political élites. These categories are not entirely arbitrary, but coincide with some major approaches to the study of society, as represented by the several social sciences." With all of this everyone seems to be in agreement. There would be wide, if not complete, agreement with their central tenet that there should be an effort to develop in comparative education a systematic, controlled, empirical and critical methodology. This, of course, does not rule out other approaches or perspectives as being of value, but umbrage is taken by some at the one word "scientific" in the following quotation: "there is one fundamental factor that promises to promote depth and rigorousness (sic) while uniting the disciplines engaged in comparative education. This is the scientific method, a mode of inquiry that is not merely a set of procedures or techniques, but an approach toward establishing belief."

Departing from the strict chronology of events, it is necessary to return now to some earlier work, particularly that of Anderson, which has been more pervasive in its effects than is generally recognised. It had a marked effect on the 1963 conference and no doubt still affects the present one. Much of his concern for good work in comparative education coalesced in *Methodology of Comparative Education* (1961) with its characteristic flavour being most apparent in the introductory section. Speaking of the analysis of educational practices around the world he suggests that it is the aim of the serious scholars in the field to discipline the speculations of their more vocal associates: "Enthusiasm alone, unfortunately, does not bring forth scholarship, nor do heaped up facts make a science.. Too many writers are using archaic tools for shaping the larger supplies of facts into generalizations." He contends that "we do not need some novel method to refine the data but only application of dependable social research techniques guided by more appropriate and acute questions. Methods for comparative study have been undergoing refinement in several disciplines. There remain genuine difficulties, to be sure, and in so complex a field as education we must contrive strategies that balance technical refinement with theoretic subtlety, always tempered by recognition of the serviceability of even approximate answers."

Anderson perceived that there had always been two complementary approaches to comparative education. The first treats education as if it were an autonomous social system. From such detailed study, repeated first in one society then another, we may examine our data so as to establish some taxonomy, some ordering of aspects of the systems observed. Although he does not suggest this, we may use such a taxonomy as a set of dispositional predicates enabling all of us to talk of the same thing. We may even operationalise the terms by specification of the operations which lead to their measurement, though this is not essential. We may also classify them in a hierarchical way so as to reveal

the true order of relations which exist among them. He recognises that eventually we shall have to proceed from simple ordering via correlation to factor analysis. It would now be possible to demonstrate that true hierarchical order is shown by the form of the correlation matrix, either meeting the Simplex or Circumplex forms discussed by Guttman (1964). Anderson was content to see if the taxonomic classification would yield a hierarchy without recourse to detailed statistical analysis.

Anderson's second approach treats the relations between traits of educational systems and other features of society. This it does first for one society, then for another and so on, obtaining parallel data from other societies. Comparative education then becomes the cross-cultural comparison of the "structure, operation, aims, methods and achievements of various educational systems, and the societal correlates of these educational systems and their elements". We seek to provide reliable maps "locating congruent educational practices appropriate to coping with the tasks laid upon schools by a society". This mapping task becomes a second service which comparative educators need to provide. From such maps Anderson expected that some typology might well emerge. In this sense he was placing together in some organised way those things which might go together. At the simplest level these may be mere descriptions of elements of practices. But of course description can go only so far in contributing to knowledge. We must have a search for what has been called causal relations - a doubtful concept, but one usually satisfied in terms of concatenations, concomitance and contiguity of a sequential nature. In other words, comparative education involves correlations across the boundaries of societies. This implies some reference to co-variation, which in turn implies a model and a calculus.

Before returning to this point about models it might be as well to examine the other major points made by Anderson. In the first place, the comparative educator has a paucity of indicators, and in particular we are short of information about the

products of our various educational systems. Without such measures we are virtually helpless. Given some measure of the products, we can partial out the effect of the schools in the various individual school systems, so measuring the societal effect. We must, therefore, use amount and quality of education both as a dependent and as an independent variable. We may wish to consider both the intended and unintended outcomes of schooling, but the educator has the task of estimating what children exposed to different modes of schooling actually learn, prior to deciding how much of these results stem directly from formal teaching. This is equivalent to attributing one part of the effect to one cause, and one part of the effect to a different cause. Methodologically we have a way of getting such a result - we have a calculus which corresponds to our model of enquiry. In practical terms, no matter how crude our results, we shall have "made one gigantic leap forward when we know how much learning of arithmetic or mother tongue is to be found among graduates of different school systems".

After making such statements, Anderson must be comforted to see the progress made by the IEA enquiries in the following decade. This apart, Anderson made explicit use of two models. Of these he said: "They constitute a preliminary attempt to present in abbreviated form a systematic set of hypotheses derived from a combination of empirical observations (at a crude level) and deductive reasoning. This kind of formulation can help guide research whether the hypotheses involved turn out to be correct or not. Their testing requires comparative data and application of appropriate techniques in analysis of co-variation." We may summarise part of the foregoing contributions of Anderson by noting that he made specific reference to only three calculi in his models: factor analysis, analysis of co-variation and multiple regression analysis. Subsequently, Farrell (1969) has suggested that we add scalogram analysis, whilst Asher and Shively (1969) have utilised discriminant analysis. Finally our attention has been drawn to a non-metric analogue of factor

analysis, one which makes fewer assumptions as to the conditions for use and is particularly appropriate with ordinal data, the technique of smallest space analysis (Farrell, 1970).

If we return to our earlier discussion of models (see p.97) we note that it is possible and desirable to consider the model apart from its calculus. What we need is to use analogies to construct models, and then to seek the calculus which it implies. The calculus contains its own logic; what we need to do is to consider the logic involved in the other part of the model. Such a consideration of the logic of the models which involve comparison has been attempted by the political scientists (Przeworski and Teune, 1970). Since reference has been made to this work in other papers, both by myself and by Noah, no more need be said at this point.

We may conclude by suggesting that many methods lie open to us. First we must ask good questions, and we must be satisfied with approximate answers for, as stated above, the relations of social science measures are not fully determinate. It is helpful to draw upon all our experience in finding analogies, from any sources, which shed some light upon the questions we propose. We may use the term "model" in a somewhat looser way than Braithwaite would have considered proper, and we can divorce the calculus from the model. As social scientists we shall be in good company if, at this stage of our work, we can examine the logical implications of the questions we ask, the analogies we use, the model we propose, and choose a particular calculus which seems congruent with our previous thinking and the nature of the data we collect. The literature of comparative education, as we have seen, now contains many illustrative examples of forms of analysis which are quite applicable to our purposes. It only remains for us to take advantage of them.

Of the four papers reproduced *in extenso* in this section, those of Halls and Noah were summarised and presented for discussion. Robinsohn's excellent contribution to the discussion was based upon a formal paper and is reproduced as the third

paper. The fourth is that of Bielas who gave an ordered attempt at model building for comparative education, a model with heuristic and development potential, written within what has been described above as the "most similar systems" approach. In Bialas' application the most similar systems, from the cultural, historical point of view, are those of the German Democratic Republic and the Federal Republic of Germany; that is, for all born before 1945 the great mass of variables in a macro perspective would have been similar. Since then, broadly political, philosophical, cultural, economic and ideological changes have been introduced. Identification of dependent variables, criterion variables, give to these two geographical areas something of the "natural experiment" status against which we can estimate the effects of the various dimensions of change.

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The last decade has witnessed not only a vast burgeoning of the literature in and about comparative education, but also a radical change in the rationales, methods, and goals of the field. Whether this change in landscape has been for the better or the worse I shall leave for colleagues to judge. But imagine the situation of R.V. Winkle, a professor of comparative education, who had fallen asleep at the end of 1959, to awaken again only in 1970. His slumbers would have commenced with his subject dominated by the works of Kandel, Hans, Lauwerys, and Rosselló. He would have been aware of only the barest intimations of a more deliberately social-scientific approach. On awakening he would have found a new style of work bidding strongly to take over the field, though without having won over by any means all of its practitioners. In any event, he would have had a formidable reading assignment awaiting his attention!

Much of the justification for undertaking comparative education studies prior to 1960 was in terms of their potentialities either for countering parochialism or ethnocentrism, or for assisting in the improvement of education at home. Basically, researchers and writers were asking such questions as: What is characteristically French about the French secondary school curriculum? or, What is happening in German schools that we might profit from? The theme of recent work may perhaps be seen as a progressive transfer of attention from *country-characteristics* to *problems*, and from *problems* to the specification of *relationships* and the formulation and testing of *theories*. This is not to suggest, of course, that the new style has found uni-

versal and unquestioned acceptance, or that the previous genre of work is without merit. On the contrary, we continue to see, and shall continue to want, studies with such titles as, "Higher Education Reform in Germany", "The Technical School in the Dominican Republic", "Local Initiatives in Pre-School Education in the Soviet Union", and so on. Moreover, all is not plain sailing in the new mode. The conceptual and practical problems of conducting theory-oriented comparative research are not only not immediately and obviously tractable, but are also being widely aired.[1]

In this change of emphasis comparative education is clearly folowing a course already charted in economics, sociology, and political science. Economics has ventured furthest, perhaps. It has now left far behind its earlier preoccupation with the identification and description of economic institutions and has become a complex endeavour to explain and predict behaviour connected with making choices among alternatives. Sociology, similarly, has moved beyond the description and classification of social units to analysis and prediction of their interaction. And, just at the present time, some of the most fruitful work of relevance for comparative education is currently appearing from political scientists pursuing a cross-national approach.[2] Clearly, these parallel developments have not occurred simply by chance: they express a common reaction to a common set of methodological potentialities and problems. The challenge to move from the particular to the general, from identification-description-classification to hypothesis-testing, theory building and prediction is pervasive.

One test of the prgress of a science is its acquisition of a terminology. In developing "technical terms", words are often borrowed from everyday use, and then more precisely defined for technical purposes. One thinks immediately of the use in physics of the term "velocity" (with its essential connotation of *direction* as distinct from the unvectored concept, "speed"; or, in economics our attempt to define "demand" as

"ability and willingness to pay", and not simply to retain its common meaning of "need" or "desire". Indeed, on occasion the most far-reaching result of scientific study of a phenomenon appears to be the recognition of a new, more powerful, albeit more limited, definition of a term.

Consider what is happening to the term "comparative" in the title that denotes our field. I believe that we are about to move rather rapidly away from the everyday meaning of the word to a much more technical meaning. This rather radical redefinition of the term "comparative education" will involve at once a limitation and an extension of its scope. The impulse toward limitation will arise because we have come to realise that many studies that happen to use international and foreign data are not to be considered "comparative" simply by virtue of that fact; and the impulse toward extension will occur because many studies conducted on the basis of data drawn from within a single country nevertheless have a valid claim to be considered comparative, once we define the term in a way that reflects the function of comparison in systematic explanation.

Clearly, while this process is continuing we can expect a rather lively controversy on just what the term should and does mean. In part, I suppose, this is what this conference is about. The summary of our deliberations may legitimately expect to record what is happening to the nature of our field, and if we are optimistic, we can even hope to influence it.

Comparative education has mistakenly come to be identified either with the study of education in another country, or with studies using data drawn from more than one country. This view of what constitutes comparative education enjoys the sanction of both common usage and common sense. One finds out what is going on abroad and compares it with what is happening at home, often with a practical programme of amelioration in view.[3] Certainly, many essays in comparative education are of this type. Alternatively, one uses a collection of multi-national data to identify, describe, and compare relationships (usually correlations) within

education, or between education and other social phenomena.[4] Again, I must emphasise that to call such studies "comparative" agrees with common sense and usage. But the weakness of that position is that it establishes as the criterion for classification as a comparative study the mere presence or absence of foreign or multi-national characteristics of *data*, and by implication ignores, or even denies, the existence of a characteristically comparative method. We are hindered from asking a set of key questions: Are all inter-, cross-, or multi-national studies *ipso facto* comparative? Are all comparative studies necessarily either inter-, cross-, or multi-national? What, indeed, are the necessary and sufficient conditions for a study to be comparative? Does there exist a characteristic comparative approach to a problem? If so, what is it?

Nations constitute one important set of systems that attract our attention, and we have employed so-called comparative studies largely to identify and describe the attributes of such national systems. We have ended up with "nominal" statements of the type: "In country A, the secondary school curriculum is such-and-such; while in country B, it is so-and-so; and in countries C, D, and E, it is something else." Or, we might say in quantitative terms: "In country A, the fraction of the GNP spent on education is high (7-8 per cent);in country B, it is moderate (5 per cent);in country C, it is low (2 1/2-3 per cent)."

However, as the social sciences have extended the range of questions they ask and as comparative studies (among them, comparative education) have matured, so we have begun to comprehend a fundamentally different role for comparison, whether conducted on the basis of national systems, or of other units. The key to this transformation in our thought lies in the attempt inherent in the social sciences to *explain* and *predict*, rather than merely to identify and *describe*. A simplified example may, perhaps, help illustrate the new emphasis in comparative work:

Let us assume that we wish to explain (and, perhaps predict)

the relationship between the size of a family's income and the probability of the children in the family enrolling in full-time post-secondary education. If we find *mirabile dictu* that this relationship is the same from country to country, then we have no need to proceed further. We can immediately make a general (that is, a non-system-speific) statement defining a relationship between family income and the probability of post-secondary enrolment that is valid without including the names of any countries. But matters are more complicated if we are faced with the more likely case in which relationships differ from country to country. For example, we might find that while all countries exhibit a positive relationship between these two variables, the correlation is very strong in some countries, only moderate in others, and rather weak in a third group. Or, putting it in the language of least-squares linear regression analysis, we find that our best fitting equation explains different proportions of the observed variance in different countries. Let us assume, too, that no amount of within-system adjustment of either the independent or dependent variables alters the fundamental fact that in different countries similar levels of family income are associated with (or, "produce") different probabilities of a family's children attending post-secondary institutions.

This is the paradigm situation calling for employment of the comparative method. We now have to ask, what are the *system-level* factors that are at work, influencing the interaction of *within-system* variables? As we shift the level of analysis from consideration of within-system to system-level factors, we are engaged in trying out the effect upon these different within-system relationships of introducing additional, theoretically justifiable independent variables, in the form of system characteristics. We continue to do this until we can no longer (a) increase further the proportion of observed variance explained within each country; and, (b) reduce further the differences among countries in the proportions of observed variance explained.

To continue with our example, we might try out in turn the effect of including among our explanatory variables such system-level factors as "degree of income inequality", "ratio of the number of secondary school graduates to the size of the corresponding age-cohort", "proportion of direct costs of post-secondary education defrayed from non-tuition sources of finance", and "recency of the post-secondary institutions enrolling 5 per cent or 10 per cent of the corresponding age-cohort". We stop when the inclusion of further theoretically justifiable system variables yields insignificant returns in terms of (a) and (b) above.[5]

Only at this point do we introduce the names of countries in explanation, ascribing the remaining differences in proportions of variance explained to the unanalysed or unanalysable peculiarities of the countries. In this explanatory model, country-names are used to tag bundles of unexplained variance. The object of the exercise, then, is not, as in traditional comparative studies, to extend and enrich as far as possible, the connotational content of country-names; instead, we seek to extend and enrich to the limit general "law-like", cross-system statements, bringing in country (that is, system) names only when our power accurately to generalise across countries fails. *A comparative study is essentially an attempt as far as possible to replace the names of systems (countries) by the names of concepts (variables).*

In this style of comparative study, for the example we have taken, we might hope to make a statement of the type:

> In all countries, size of family income is positively associated with the probability of children in the family being enrolled in full-time post-secondary schooling, and differences in family income can explain at least one-half of within-country differences in the probability of enrolment. In those countries where income inequality and the proportion of costs defrayed from non-tuition sources are low, the explanatory power of differences in family income rises to at least three-quarters. Consideration of the fraction of the age-group graduated from

> secondary education, and the recency of growth of the post-secondary system does not improve explanation appreciably in any case except in the Soviet-type countries, where these factors do seem to be important.6

For our present purpose, the crux of all this is the necessity at some point in the analysis to stop further within-country analysis and to change the level of analysis to incorporate among-country variables. For this is the essential condition for a study to be classified as "comparative": data are collected at more than one level and analysis also proceeds at more than one level. With this criterion we can attempt answers to the questions posed above (p. 111).

Q. Does there exist a characteristic comparative approach to solving a problem, testing a hypothesis, formulating a theory?

A. Yes. It involves formulating the analysis so that within-system relations are explained as fully as possible using within-system variables, comparing the characteristics and differences of such explanations across systems, and trying to explain these characteristics and differences by changing the level of analysis to take account of the operation of variables identified at the level of systems.

Q. Are all comparative studies necessarily either inter-, cross-, or multi-national?

A. No, although many are. National units commonly form the matrix for data collection and governments are willing to finance studies (either directly, or indirectly through the international agencies) as part of the international sport of competitive growthmanship. But we ought to insist that a study within, say, the United States of the relationship between family income and the probability of the family's children enrolling in post-secondary education, formulated in terms of South vs. non-South, or urban vs. rural areas, or whites vs. blacks, has an equal chance with an international study of employing the comparative approach, as defined above.[7]

Q. Are all inter-, cross-, or multi-national studies *ipso facto*

comparative?

A. No. Many studies use data from more than one country, but restrict the variables considered or the analysis employed to a single level, either within-system or whole-system, but not both. Thus, we have seen multi-national analyses of trends in educational expenditures that are restricted to juxtaposing country-level relationships (for example, percentages of GNP devoted to education), and there are multi-country studies of curriculum restricted to within-country univariates (for example, the amounts of time assigned to different school subjects). In the technical sense of the term that we have suggested above, such studies are not comparative.

NOTES

1. See Bruce M. Russett et al. (1964), Part B "The Analysis of Trends and Patterns", especially "Multifactor Explanations of Social Change", pp. 311-321. Also R. Merritt and S. Rokkan (1966), Bernhard Dieckmann (1970), Dieter Berstecher (1970), S. Rokkan (1968), and A. Przeworski and H. Teune (1970). Some points presented in this paper rely heavily on Part One of the latter book. Each of the volumes cited here contains important bibliographies.

2. See Przeworski and Teune (1970), D.E. Apter (1968), R.C. Macridis (1968), H.A. Scarrow (1969) and P. Shoup (1968). G.A. Almond and S. Verba (1965) remains a work of primary importance in the field of comparative political/educational analysis, although see Sheuch's contribution in Rokkan (1968) for a critique of many aspects of the Almond and Verba work.

3. The *locus classicus* is M.-A. Jullien's "Esquisse . . .", reprinted in S. Fraser (1964).

4. See, for example, Michel Debeauvais (1970).

5. Often, of course, we must stop short of this point, owing to lack of time and money.

6. Such a statement might set the stage for trying to develop a cross-nationally valid theory of the link between family income and family demand for schooling *in general*, and not just for post-secondary education.

7. Most participants at this conference are specifically concerned with the comparative study of educational phenomena

based on national units. Perhaps, therefore, our field might be better termed "cross-national comparative education". This nomenclature would have the merit of implying the existence of other bases or units for undertaking comparative analysis. Not only would we want to retain links with comparative studies using other bases, but we would recognise the existence of a common logic underlying all comparative analysis, and be drawn to follow it in our work.

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Culture and Education: The Culturalist Approach to Comparative Studies

W. D. Halls

The "identity crisis" of comparative educators over the past five years has progressively worsened as, with rare exceptions, they have found themselves excluded from the process of educational reform. Unlike psychologists, sociologists and, latterly, even philosophers, they have not found a role for themselves in influencing the reality of education. Thus, some have in effect become specialists in the contemporary history of education in countries other than their own; others have reverted to their original disciplines, speaking with the authority not of the comparative educator but as social scientists or economists; a few have continued to work at methodological issues, thus plunging ever deeper into an epistemology of comparative studies.

The theories and constructs of comparative education, now well over a century old as a field of study - whether the approaches to them have been "inductive", "problem-solving", "quantificatory" or concerned with "factors" or "forces", whether relating to social philosophy or one or other of the social sciences - have not in fact recently demonstrated their worth in dealing with the practical difficulties that confront the educational reformer. Thus the question must now be seriously asked: have comparative studies any *use*? Or are they merely an intellectually stimulating but rather abstruse academic exercise, purposeless in themselves? If, in despair, the comparative educator lapses into mere academicism, he will in fact be the only specialist in a branch of educational studies to do so: today even the historians of education feel - and rightly so - they have a contribution to make to educational planning.

Yet in part the situation in which the comparative educator finds himself is of his own making. He has tried to be all things in education to all men: political scientist, sociologist, economist. He has, with praiseworthy diligence, attempted to master the tools of many disciplines, and has sought the gift of tongues and a thousand other accomplishments that unfortunately lie beyond the reach of the would-be twentieth century polymath. He has failed to realise that, particularly in education, there is scope for the *generalist* - one able to grasp the significance of the contributory disciplines to education without necessarily being an expert in more than one. There must, in fact, always be someone able, with a certain expertise acquired from study and experience, to weigh up the sometimes contradictory findings of the various disciplines against each other. The comparative educator has to occupy the "middle ground" from which he can survey the total scene. Only in this way can he, for example, match the qualitative reasoning inherent in the approach once postulated by Schneider with the scientifically rigorous approach more recently advocated by Noah and Eckstein. For none who have written extensively on the theory of comparative education would lay claim to possessing all the law and the prophets.

At the risk of adding to the methodological confusion I would like to propound a *culturalist* method of approaching comparative studies for which, although it owes much to what has already been written on methodology, I would like to take sole responsibility. (Bourdieu and Passeron, 1967, are the first, so far as I am aware, to speak of the "culturalist" approach to educational problems.) It is one entirely compatible with the view that the comparative educator must be a generalist; it is one that has practical applications - and indeed in keeping with practical steps in educational planning that have already been taken, as so often in real life practice does precede theory. The method is thus distilled from practice, and is therefore *a posteriori*. But it requires an approach which is only valid on certain conditions.

It is only applicable to comparative studies of the educational systems of industrial societies, whether these concern intra-cultural and intra-educational analysis or merely comparative pedagogy. Yet it has a limited application to international education, insofar as that field is concerned with international schooling and international pedagogy. Thus it specifically excludes development education, i.e. the application of the educational theories and practices of education of advanced industrial societies to education in emergent societies. Fundamentally, therefore, the culturalist method is concerned with comparing like with like, with ascertaining how far the theories and practices extant in one industrialised society are susceptible of application in another, similar society, and how far a synthesis of theories and practices in several such societies can be of use in the shaping of an international education network. The method is therefore of limited validity.

The culturalist approach is based on a truism, somewhat neglected by comparative educators in the past, that every educational system derives from the cultural context in which it exists. Thus, using both terms generically, "education" *in abstracto* is essentially a phenomenon of culture. The term "culture" is used advisedly to signify the creative achievements, objects and ideas transmitted from one generation to another. This does not negate the undoubted relationship between education and society, insofar as education is concerned with interpersonal and intergroup relationships. On the other hand, it stresses the fact that man creates a culture which is a continually changing web of "traditions" passed on by education. Herskovits (1949)- who incidentally challenges the possibility of comparison - has categorised these traditions as "economic, social, technological, religious, aesthetic, linguistic". In education such traditions are necessary to the process of acculturation.

Herskovits also propounds another valuable classification. He conceives of culture, in a hierarchically descending order, as

composed of *types, areas, complexes* and *elements*. Thus, as the product of education in its reaction with culture, one might speak of the type of Western-educated man, within (but not exclusively within) the cultural area of Western Europe, within the complex of Latin culture and compounded of such elements as classicism, Catholicism, communicating in analytical language terms. One might even identify the components of education which had emerged from such a culture, with its locus in France. Here the survival of a classical education has been more marked than anywhere else in Europe, giving colour and substance to a strong literary and intellectualist bias in education. Here, too, the highly analytical nature of the French language has been used, through the study of philosophy in school and the exercise of *explication de texte*, to produce a sharply critical and individualistic turn of mind. In such a mind also the doctrines of Catholicism produce either total commitment or total rejection. Cultural characteristics produce marked educational characteristics. A typology of cultures, whether in the anthropological system of Herskovits, or the simpler classification into local, national and regional, is of great help in comparative studies in education.

We shall return later to the concept of typologies - although in a slightly different sense because it is fundamental to a comparative method based on the culturalist approach. Before, however, exploring further the relationship between culture and education, it is necessary to discuss the aims of comparative studies in summary fashion, as necessary also to understanding the argument that follows.

Such aims may be of two kinds: theoretical and applied. The theoretical aims consist firstly in *the formulation of an acceptable educational morphology* as a basis for comparison. Ideally, such a classificatory system should preclude all ambiguities and, in particular, all overlapping categories. In our present state of theoretical knowledge it has not been possible

to do this, and therefore the system elaborated below suffers from this grave, but not insuperable, flaw. Secondly, such a morphology should enable one to perceive the fundamental conditions for change and for persistence of educational phenomena in a given cultural context. By evaluating, with as much precision as possible, the actual cultural context in which an educational phenomenon manifests itself, it should consequently be possible to demonstrate theoretically whether that particular element in another educational system is capable of cross-national transplantation, by comparison with the indigenous cultural context. It is this "matching" of cultures which determines whether educational "borrowings" are feasible. Since no cultures "match" exactly, the degree of similarity required for such borrowings to take place is ultimately a value judgement. There are, of course, obvious incompatibilities: the position of women in Moslem society, for example, would preclude much innovation in that society if the theories and practices introduced regarding the education of girls were taken from a European context. This is, of course, to state an extreme case. But usually the limits of "tolerance", to use an engineering metaphor, are finely drawn, and do not display such a wide margin of disparity. Lastly - and this is perhaps an ultimate aim of comparative studies which, incidentally, is not treated in this paper - it should be possible to establish the theoretical relationship of the "fundamental conditions for change and for persistence" referred to above to some ultimate "laws", which are likely to be philosophical rather than social or political. If this, however, is a summary of the theoretical justification for comparative studies, the aim of such applied studies can be stated with much greater succinctness: it is quite simply to arrive at the formulation of policy alternatives for educational reform.

We may now return to the discussion of the relationship between education and culture. If, as postulated, an educational system reflects its contextual setting, how may this context be

analysed? It is plainly insufficient to do so in purely social terms, because culture, although a social phenomenon, is clearly distinguishable from society. Since it represents inherited ideas and values, it is to some degree the repository of the past. Yet its role is not merely static. The dynamic aspect of culture lies in the fact that the past has to be interpreted afresh to succeeding generations. Bourdieu and Passeron (1967) go so far as to speak of culture as the "standardized patterns of activity and belief that are learnt and manifest by people in their collective life". These, although undoubtedly transmitted through education, change imperceptibly in the process of transmission. Moreover, culture has other sources of dynamism. In its *diffusion* also a similar metamorphosis occurs. Likewise, as new knowledge is discovered, norms, beliefs and values are constantly being modified, and mediated through the educational system. Thus culture and education are correlative, with the latter being mainly the dependent variable. In a very real sense it may be said that culture not only conditions the educational phenomenon as it manifests itself in a particular society, but is also the content that educational institutions have to purvey.

Although it may be accepted that the two parameters of comparative studies are education and culture, some further elaboration of both these variables is required. A convenient way of sub-dividing the concept of education is to accept those categories which correspond to conventional educational analysis: *goals, structures, curricula* and *methods of instruction*. Each of these categories is plainly susceptible to further division. Thus goals may be analysed as either long-term (aims) or short-term (objectives); furthermore, they may be pupil-centred discipline-centred, societally-oriented or philosophically-oriented. Structures may be classified according to the level of education and the degrees of horizontal or vertical differentiation. Curricula must subsume all the activities of learning, whether intellectual, moral, social or aesthetic, and whether occurring in a formal instructional situation or not; they must

also clearly include the content of all subjects normally studied in educational institutions. Methods of instruction include both formal and informal, both that which relates generally to teaching (*Didaktik*) and that which relates particularly to a subject or group of subjects. Again, some limitations of definition must be admitted: from this classification two important conventional concepts of education have regrettably had to be omitted because they fit with difficulty into an exposition of the culturalist method. These concern the resources employed in learning – the whole range of educational technology used as an adjunct of methodology; and the evaluation process, whether of student, teacher, content or method of instruction. Such omissions are another flaw in the approach here advocated but not, it is submitted, so serious as to make it nugatory.

The other requisite parameter, that of culture itself, is not so readily analysable as education, if only because it can be easily shown that not all cultural phenomena are of equal importance in relation to education. A trivial example may make this point clear. The fact that Sweden switched fairly recently from left- to right-hand driving is a rather insignificant change in the cultural pattern in the sense that it is one that only marginally influences education - perhaps in driver instruction or in teaching road safety. What, on the contrary, must be sought are cultural influences of deeper educational significance. Such a search must therefore be conducted in the realm of the history of ideas. A tentative exploration in this field reveals a number of "attitudes" - so-called for want of a better term - which in varying degree appear to have reacted upon the educational process in many industrialised societies both before and since industrialisation. Such influences may conveniently be termed "cultural indicators". They relate to:

1. religious attitudes,
2. philosophical attitudes,

3. political attitudes,
4. social and economic attitudes, and
5. attitudes bearing on knowledge.

To complete the cultural parameter, sub-divisions must be created for each of these; the list elaborated below is, however, exemplary rather than exhaustive.

1. Religious attitudes require little further explanation. Obvious sub-categories are: Christian/non-Christian; Catholic/Protestant; agnostic or atheistic. There are of course many others, depending upon the educational systems to be compared. None can question that religious attitudes have in the past profoundly affected educational theory and practice, nor that they still have a place in any detailed comparison of the main industrialised societies.

2. Of philosophical attitudes, a few only may be mentioned here. Who would question, for example, the influence of Cartesianism - and not only on French education - for what Descartes propound has a clearly educational corollary: a posture of doubt and questioning; the learning of the process of analysis and synthesis; the cultivation of the ability to reduce the complex whole to its simplest constituents; the emphasis on exactness, on clear and controllable results; the learning of the process of conceptualisation, proceeding in stages from the *intuitus*, *deductio* and *enumeratio*. On another plane might be mentioned idealism: the doctrine of the perception of ideas, of which archetypes exist but of which humans can perceive only imperfect copies, perhaps had its heyday in the education of Victorian England, but its cultural force is by no means spent. Likewise empiricism, with its emphasis on the experiential, and pragmatism, with its stress on the practical, have affected educational systems, particularly acting upon structures, content and methods. Here, moreover, it is important not to fall into facile generalisations, characterising the French *lycée* as Cartesian, the German

Gymnasium as idealist, the English grammar school as empirical, and the American high school as pragmatic in tone. Every one of these four philosophical attitudes - and others - has influenced every one of these parallel educational institutions. The paramount task remains of identifying (and, if possible, of setting up quantifiable indicators) the causes, effects and ultimate consequences of such philosophical influences on these comparable educational systems.

3. Such systems are likewise subject to the pressures of government, and political attitudes influence them considerably. The general question of the degree of politicisation of education is posed: what has been the effect, for example, of the increasing political control that has been exerted over the last generation? The theory of educational centralism, often characterised by a technocratic approach to education by the politicians and a bureaucratic approach by the administrators - with the two approaches often in conflict - has made great advances recently. What, in fact, are the hallmarks of this style of educational governance, and what characteristics of political control are transferable from one educational system to another? On a plane that affects educational institutions more directly, what is the degree of cultural nationalism and - the reverse of the medal - the degree of internationalism observable? Such political attitudes, as a reflection of culture, deserve the same meticulous analysis as the philosophical influences to which they are in part tributory.

4. Attention has in recent years concentrated, perhaps unduly, on the social and economic attitudes that serve as cultural indicators. The difficulties for the comparative educator have arisen because of the incomparability of data. Among such attitudes that require further study are the present status of élitism and its significance in a world increasingly committed to egalitarianism, and also the future of the

authoritarian principle in education. In relation to the impact of economic influences on culture, and consequently upon education, theories of education as a consumption or an investment good have recently made much headway. What can such social and economic concepts, compared cross-nationally, contribute to educational planning?

5. On those cultural attitudes relating more directly to knowledge, and their influence upon the educational process, fewer studies have recently been made, yet the cognitive process is basic to schooling. Here many questions require resolution. How far, for example, does the scientific and technological approach conflict with a more classical one, which is still influential in Western Europe? How far has instrumentalism succeeded in supplanting the disinterested pursuit of knowledge as one of the aims of higher education? What is in fact the role of intellectualism as an educational doctrine in the modern world? It could be argued that the French have conceived the function of the intellect as not only to develop the mind, but also to develop the moral sense, personality and character, producing an educational system whose typical norm is that of "mental prowess". The Germans, in their attitude towards intellectualism, have been more fluctuating. At times they have accepted the same proposition as the French, that "to know the good is to do the good"; at other times they have placed more reliance upon an intuitive approach. In contrast, the English have often seen education as non-intellectual, and at times placed their faith as much in the games field as in the classroom or lecture hall. And it has been said that the Americans have often been anti-intellectual, seeing education more in social than intellectual terms. Such generalisations, facile as they are, serve nevertheless to illustrate that cultural attitudes to knowledge are of great importance.

Thus, national styles in education, the "pattern of performance" which societies demonstrate in dealing with the contemporary world, comprise unique amalgams of diverse cultural attitudes - unique because each is assigned a different weighting in each educational system. What has been propounded above is an outline for a taxonomy, in which the variables of education and culture, with the examples of sub-categories given for each, represent respectively the vertical and horizontal parameters. Such a classification, crude though it is, provides a "grid" in which the numerous "cells" thus formed represent a number of topics which should interest the comparative educator, and which require thorough investigation. What, for example, has been the role of intellectualism at the upper secondary level? How far has the principle of egalitarianism permeated the levels of lower secondary education? At the primary level, is authoritarianism receding? The use of such a "grid" for comparative purposes establishes a framework in which the educational process is investigated in its total cultural setting.

Such a framework, however, constitutes only the *content* of comparison. The act of comparison, as broadly expounded by Bereday and others, remains the same. The referential points are the foreign educational system and the "base" system, usually the one that the comparative educator knows best or is trying to influence. The ultimate comparison is a form of multifactor analysis, for it involves several educational systems simultaneously. The objective is still the ascertainment of significant differences between systems which, because approximately similar, are truly comparable. It is possible to establish reciprocal influences within the objects of comparison. In addition, every "cell" of the grid framework can be double, relating to both theory and practice. Thus, for example, one may compare theories of élitism between two countries in relation to the academically gifted; one may also compare the actual practice of élitism in both countries. One may also establish a cross-

reference comparison between theory in one country and practice in another. (One thinks of the often quoted example of Sweden, where it is alleged that the theory and principles behind the English Education Act of 1944 had an effect on Swedish practice later.) Moreover, the device of the "grid" allows every topic within it to be explored from a large number of viewpoints, and thus permits both a qualitative and a quantitative approach. Topics obviously often require consideration in relation to a number of countries. In this case, the matrix becomes three-dimensional: one could, for example, evaluate the influence of religion on the curricula in a number of countries, arriving at conclusions, some of which would be plainly theoretical, but others of which would provide useful data for the educational planners.

In another context (1967) I have compared the field of comparative studies (for a discipline it is not, nor ever can be) to the map of an hitherto unknown island, of which only the rough outlines of its coasts have been delineated by pioneers such as Schneider, Hans, Kandel and Rosselló. But the island itself remains largely unexplored: a thousand details of it require to be elaborated. The method advocated above is t. apply a grid reference framework to the surface of the island, so as to sketch in its distinctive features and contours.

We turn now to practice. At Oxford, where the "culturalist" approach has been developed, a small group has been involved in cross-cultural and cross-national comparisons, particularly in relation to the curriculum. The rest of this paper aims to describe certain research aspects of these projects in order to illustrate how the culturalist method may be applied. It is stressed, however, that the method evolved only as the studies progressed, and no *a priori* strategy was adopted.

The first study, the Oxford/Council of Europe Study for the Evaluation of the Curriculum and Examinations (OCESCE Study) is

an onward-going project concerned with the upper secondary level. The cultural strands of the overall report of the study, which are already emerging, confirm very much the theory of the significance for comparative studies of cultural indicators. The survival of classicism; the conscious attempt to promote a more international outlook; the increasing influence of the State; the new concept of education as "social engineering"; the application of systems analysis to educational management; the reaction against science and technology among students in some countries: these are some of the disparate themes of education and culture that can already be discerned.

Another study, commissioned by UNESCO, has been made of the problems and possibilities of equivalences in the context of the transition from secondary education in one country to higher education in another. The degree of *congruence* in key areas of the curriculum has been estimated for five countries, by the use of carefully prepared and very detailed subject inventories by topics, as has also the degree of congruence in objectives and in the evaluation process. As a result, a number of practical measures have been proposed for improving the "fit" between secondary education received by the student in the "despatching" country and higher education in the "receiving" country, and for preparing the student so that he may acclimatise himself in a different cultural environment (since failure by the foreign student is often due not only to linguistic difficulties but also to "cultural shock").

A comparative study, commissioned in England by the Schools Council, has been prepared concerning the preparation and assessment of students for university in five countries, including England, France, the Federal Republic of Germany, the USSR and the USA. The study was commissioned after the rejection in England of the ill-fated "Q and F" proposals, with the aim of finding out what was comparable practice in a representative cross-section of industrial countries. Because of its specific brief, it was more in the nature of a fact-finding operation than evaluatory. The

report nevertheless contains much source material for the kind of comparisons envisaged in this paper.

The most ambitious project, however, with which the group at Oxford has been associated is the creation of an international university entrance examination, the International Baccalaureate, which is now widely accepted as an admissions qualification to higher education all over the world. This has partaken more of the nature of operational research. It entails, *inter alia*, the construction and continuous revision of a whole programme of curricula in a large number of subjects. The experiment has had to be limited to twenty schools, all with a very mixed international student body, some private and some State institutions, situated in a dozen or more countries; these schools now use the Interbac examination as the qualification for entrance to university in place of the national examinations of the country where they are situated. In an age of increasing international mobility the possibilities for such an international examination and, more important, such international curricula are immense. The elaboration of the curricula initially involved some fifty international meetings over a period of three years and drew in more than 600 people - teachers, inspectors, administrators, officials of international organisations and of foundations. A process of curriculum arbitration has gone on, and is still proceeding as revision of the initial programmes takes place, with a surprising willingness by participants to sink their national differences and produce an internationally orientied course of study. Not that all has been plain sailing: some of the most trenchant criticisms have been made by students who have taken the examinations. The history syllabuses, for example, were held at one time to be too Eurocentric. A Pakistani student coming from one participant school, the United Nations School in New York, protested that the programme in philosophy was too Western-oriented and made no attempt to cater for the different style of thinking in Oriental philosophy. On the other hand, there have been some success stories, such as the programme in world literature; the broader approach to

languages, with the stress on communication and on the "life and civilisation" of those areas where a particular language is spoken; the international viewpoint adopted in the social anthropology course. These, and others, demonstrate that due regard having been given to cultural differences, it is possible to devise an international programme of study transcending national considerations.

In the particular field of international education, therefore, the comparative educator may work especially fruitfully. He is here the sole expert, inasmuch as he possesses sufficient knowledge and "know-how" to overcome national and cultural parochialisms. Yet, as it is hoped has been demonstrated, there is also room for him to make a significant contribution within his own national setting. Ultimately, however, all discussion of methodology *in vacuo* must be largely arid: all advances in knowledge, all new disciplines have evolved as a result of people working in the field, making their discoveries by using any methods that come to hand. One may take the analogy of curriculum theory as it has developed over the past decade: it has used in turn psychological concepts, philosophical ideas, the biological "tool" of taxonomy and, more recently, systems analysis and management theory, as well as pure pedagogy. Armed with their experience, curriculum specialists can now proceed, by hindsight, to a new synthesis of theory. It is argued that this same procedure is relevant to comparative studies. Using whatever methods are to hand (and the culturalist method set out in this paper evolved only after a consideration of practical problems), it should be possible to contribute to educational reform and then, later, to return to methodology backed by a wealth of practical experience, in order to evolve a new synthesis.

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Discussion of W. D. Halls' "Culture and Education"

Saul B. Robinsohn

Dr. Halls puts forward four major concerns in his paper:

1. Comparatists are excluded from political influence.
2. There is an undue (primary) preoccupation with method (of "other" disciplines).
3. In attempts to explain educational phenomena, especially the "fundamental conditions for change and for persistence" there is a frequent neglect of "cultural" parameters and of cultural "attitudes".
4. Dr. Halls is primarily interested in cross-national adaptation, borrowing, "arbitration", integration.

Let me first summarise my position on these four concerns and subsequently argue one or two points of possible controversy. I sympathise, by and large, with 1 and 4, while I disagree, on the whole, with 2 and would like to offer an alternative to 3:

1. Social scientists of other disciplines have occasionally been accorded greater influence in educational policy making than most comparatists (or, for that matter, than most educationists in general). This one may regret.

2. However, this is hardly due to a failure to pose as "generalists" but rather, I submit, to a lack of convincing systematic and specialist understanding of what happens in the educational sphere (call it sub-system) of society.

3. Against earlier traditions in comparative education (from early beginnings down to Schneider, Hans, Kandel) according to which a concern for the development and improvement of educational institutions was combined with an interest in the "cultural" determinants of educational systems, present moods

stress the analysis of operational variables in the societal and the individual-behavioural context of education. Dr. Halls prefers to fall back on those earlier traditions, not without an attempt at better systematisation, taxonomically and analytically. While I agree with his insistence on paying due regard to the parameters of an educational culture in their influence on educational development, I do not believe that an isolation of cultural attitudes and norms in a parametric model is useful or tenable.

4. I am in sympathy with European and more universal endeavours to unify curricula and norms of certification and admission and I think that our Oxford colleagues should be congratulated on their collaboration with the Council of Europe and with other bodies in this respect.

I shall now take up a little more specifically two of Dr. Hall's arguments and see how far I can go along with him and where my own options would lie.

A. Method

The comparative educationist, like other social scientists, is interested in change: how it occurs and how it can be brought about. (I accept no hard and fast distinction between "decisions"- and "conclusion"-oriented research!) On the micro level this concerns individual and group change; on the macro level social change. Dr. Halls' frequent remark that method comes second is, I think, justified insofar as a method, or a cluster of methods, is reliable and valid in relation to a certain interest in a certain problem - just as its single instruments and constructs are. First comes the problem, no doubt. But this is a matter of concern, not of importance. I am primarily concerned with my problem, but I have to be fully demanding as regards my methods. If, in the social sciences, I do not aspire to the same degree of *exactness* as in the proverbially "exact" sciences, I do attempt to approach

certainty - reasonable certainty of exp' nation and through it reasonable confidence of expectation. Dr. Halls - as do others of course - speaks of "prediction" (perceiving the "fundamental conditions for change and for persistence of educational phenomena", in order to predict transplantability). I would prefer to speak of plausibility and of probability of possible outcomes under certain conditions. However, this is a matter of words. As in every science or discipline, the degree to which I attain probability depends on my choice of method which is, therefore, never of secondary importance and cannot come "later" - as Dr. Halls has it.

Two further points on method, before proceeds to the "culturalist" approach.

1. I do compare, as Dr. Halls says, "like with like", not because I am concerned with matters of culture, but because this is a characteristic of the comparative method that I use to ap' roach the phenomena I am interested in, and because I can control and manipulate only a limited number of variables.
2. I would not distinguish, in the way Dr. Halls does, between educational theory and educational practice. To my mind, theory is of practice and as such can be correct or incorrect. I believe Dr. Halls uses the word "theory" more in the sense of ideology.

B. The Culturalist Approach

My second main argument is on the culturalist model itself. I certainly accept a number of Dr. Halls' propositions here; but I cannot accept his suggested model. I agree that in certain empiricist comparative work of our days little efficient use is made of variables of cultural attitudes to explain residual variances which are of cardinal interest. The IEA is the classic example (they look where "there is more light", but they can see by electric light only and therefore miss when "electricity" - statistics - fails). Attitudes toward achievement, for example,

or about the relative value of social and technical education, could go a long way towards explaining what happens in, and towards establishing effective communication on, the value orientations of a national education system. I also agree with Dr. Halls that the "history of ideas", for instance, can be an appropriate avenue for gaining such insight. The historical character, the historicity, of all societal phenomena should not be overlooked - a shortcoming of most structural functional analyses of social systems.

However, cultural, i.e. religious, philosophical, political, social and economic, attitudes and views on the worth of knowledge are neither "the total cultural setting" of education nor would the "grid" in which these cultural attitudes and certain attributes of an educational system appear as the two parameters of "comparative studies" by itself go a very long way towards explaining differences satisfactorily and "predicting" possible changes. Neither are educational institutions "derived" from their "cultural context", nor do they merely "reflect their contextual setting" any more than political institutions are a reflection of culture. An educational culture, a political culture etc. - if you wish to employ these terms - are parts of a culture", the educational and the political subsystems are parts of a social system.

Nor ought the educational system be described as "mainly a dependent variable" of culture (and cultural attitudes). There is, in fact, a manifold web of interaction between the various subsystems of a society, and a complex and extensive sphere like education with its well differentiated functions has a strong "relatively autonomous" impact on the other spheres too. "Culture" is in itself not an end, nor a continuum nor is it homogeneous nor, of course, invariant. Dr. Halls certainly knows this. "Culture", he says, "is a continually changing web of traditions." So it is, and traditions change under the influence of many factors. Since we are, indeed, interested in cross-cultural adaptation, integration and transplantation, but are also interested in the impact of attitudes and norms, we must watch out for the

entire ecological environment of an educational system, always including,of course, the attitudinal, the moral, the normative, and the ideological aspects. To say ,as Kluckhohn does, that knowledge of a culture enables one to understand the actions of a person who is a member of that culture, is strongly tautological, since our very question concerns the change of behaviour within a culture. And since, furthermore, we may have a special interest in international co-operation and integration, we may follow observantly universalist trends of value orientation, e.g. one toward rationality of action and rationality of values, represented by science and technology and by individualism and secular democracy respectively - as do Almond, Coleman, Pye and others.

In fact, the operational studies undertaken at Oxford by Dr. Halls and his colleagues to "improve the fit", to "sink differences", to "arbitrate curricula", must be founded on some such theoretical understanding. They do not entirely fit the theoretical stance taken in the rest of the paper.

In this critical comment I can only try to indicate my alternative suggestions. To my mind, comparative studies on curriculum must look out for the motives of change in an inclusive parametrical model comprising present needs and arguments in the various dimensions of social action, of course by no means neglecting that of "cultural" attitudes and norms. Hypothetical relations between these variables must be formulated, indicators looked for interpretations attempted. You cannot get it any cheaper. The complexity and the extension of the educational system mentioned before also have an entrenchment effect. Educational bureaucracy for instance, tends to be change-resistant, and educational traditions die hard. The more reason for us to search for avenues of communication through which further rationality can be brought to bear on educational "goals, structures, curricula, methods" and thus help pave the way for system improvement, rather than mere technical innovation. This could be our contribution to educational policy.

Comparison of Systems of Education in Two Countries with Common Historical Traditions and Different Social Orders: the German Democratic Republic and the Federal Republic of Germany

Léon Bielas

Peaceful co-existence between countries with different social orders is favourable to comparative research aimed at finding optimal solutions to common problems and at demonstrating in a peaceable way the superiority in specific areas of one or other country.

The basic problem in comparative education lies in the application of the comparative method: what to compare, and how to do it?

We are acquainted with the theories of Jullien, Schneider, Hilker and Rossello on this subject, and also of other, younger men - with the American theories above all. Nor are contributions lacking from the socialist countries, such as those of Kienitz or Tchacarov.

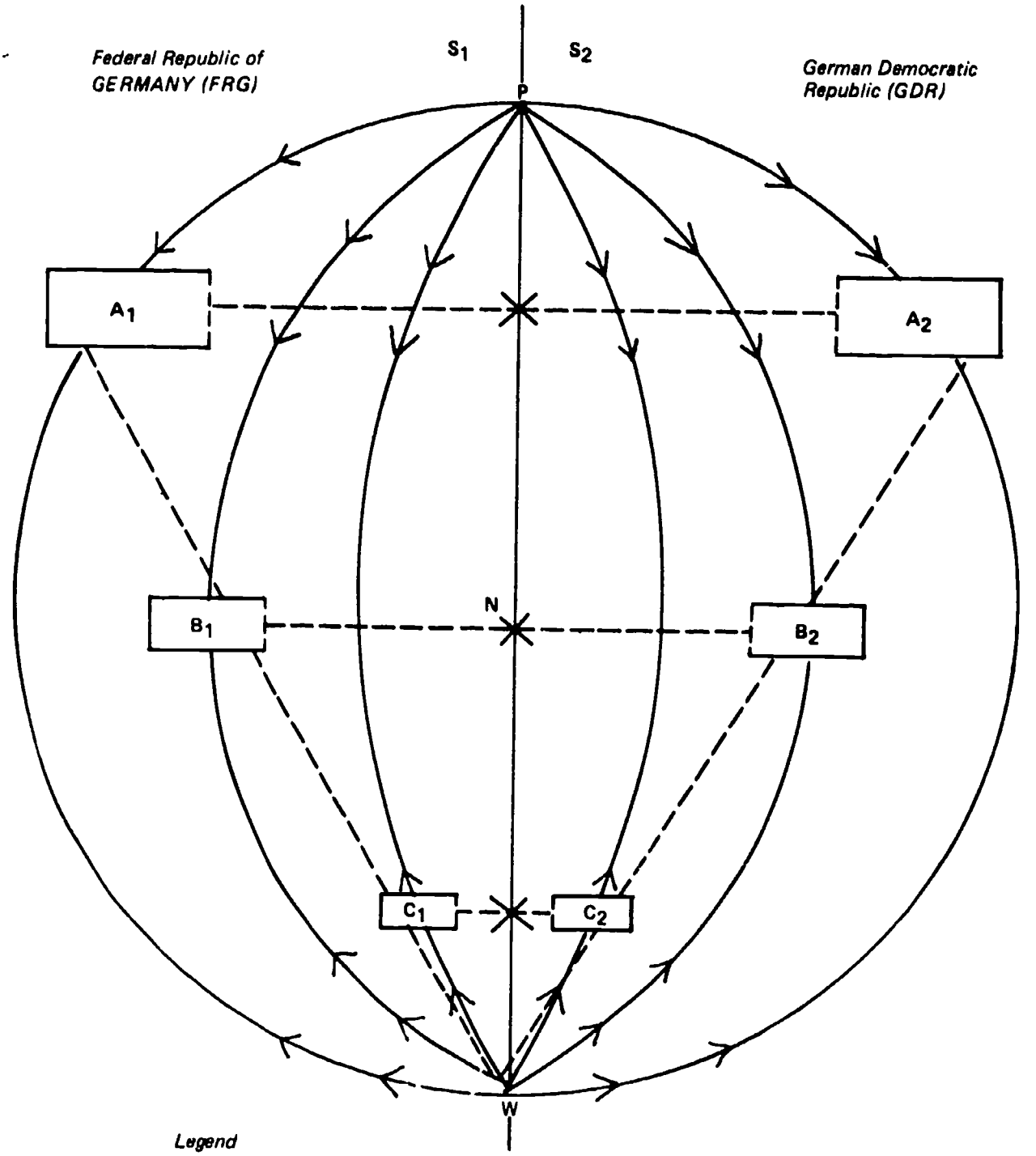
In considering the different methods of comparison, one cannot afford to ignore the German problem. From the great body of a single nation, educated without differentiation up to a certain point in time, two different societies were created which have since developed in permanent opposition to each other. The reason for this situation is to be sought - political and economic considerations aside - in the two different conceptions of civic instruction. History has created a unique situation on German soil which might be thought of from an educational point of view as a vast natural "experiment" which has already lasted a quarter of a century and already produced durable results. It is true that similar situations (partition of a single nation into two states) are to be found elsewhere, but this is not to question the fact that the weight of the German "experiment" is greater because of the number and high level of civilisation of the German people.

In these circumstances, comparison is a matter of some urgency. It is above all the Germans themselves who have an interest in such comparisons and many of their publications attempt to juxtapose the different elements of the contemporary situation in their two countries. However, it is very difficult to be objective when one has a particular interest in a question.

I have developed a simplified model, a first step in the direction of a more complex and detailed comparison. It may serve as a point of departure for an evaluation of educational achievement in Germany from a social and political point of view. It seems to me that in order to make the total analyses more efficacious, they must be supported by a comparison of countries which are as different as possible. As Bereday suggests (1964), unless the problem of comparison between two countries with different social orders is resolved, it is impossible to go on to more complex analyses and simultaneous comparisons.

In order to make an analysis of an educational system it is first necessary to construct a model to assist in defining the variables of that system and in establishing their reciprocal relations. Only such a model can reveal the nature of the system's structure, invisible in reality. "To construct a model one must know exactly what system constitutes the phenomenon, since particular types of system have their own specific characteristics; different systems are governed by different laws and different rules concerning the transformation of the elements of the system." (Mazur 1968, p.27). As the product of a theory, the model contains "an intellectual reconstruction of a part of objective reality, that is to say, its structure and content, and the reciprocal relations between the elements of this content" which form an "essential though simplified reflection of reality" (Szaniawski 1964, p.23). The structural model described here is based on premises indispensable in the construction of those sociological and economic models which can be translated into the domain of educational science. This model conforms to the most general definition of the term: "The model is a system which

COMPARISON
OF TWO SYSTEMS OF EDUCATION



Legend

S – system
W – Weimar Republic
N – Nazism
P – Potsdam Conference

A – social order
B – school system
C – conception of civic instruction

performs the function of a model as a result of the existence of a 'model' relationship between it and another system." (Sztompka 1968, p.39). In accepting this definition in its entirety, I also accept the definitions of notions related to it, in considering the function of the model as a cognitive one and accepting, of the two possible types of "model" relation in the logical sense, the simplified form which is adequate in presenting the methodological point of departure.

The educational model given here is at one and the same time theoretical, formal, polysystematic, restrictive, notional, general, alternative, adversative, and dynamic:

theoretical, since its essence lies in "premises (integrated into a collection of premises) which form a concrete structure in a defined way" (Szaniawski 1965, p.41);

formal, since it is the image of a logical system and is used in the development of a verbal theory (Sztompka 1968, p.54); a *system* model, or rather *polysystematic* since it relates to the comparison of systems (social, school, educational); as such it is *restrictive*, because it includes only a definite number of premises;

notional, since it is "a 'draft' notion subject to cognitive operations instead of the actual system which is the true object of research" (Sztompka 1968, p.50); as such it may be general or detailed: in this case we are concerned with a *general* model;

alternative, since theoretically it makes possible a different solution within the framework of the particular structural dimensions (vector forces, for example, may increase or decrease);

adversative, because it is based on the inherent conflict between systems S_1 and S_2 (confrontation between the FRG and the GDR) and on the internal conflicts within those systems; the adversative model is a *dynamic* model by definition. From the formal point of view, the last type of model best exemplifies the Marxist method applied in this paper.

The notion of a model is linked to the notion of structure and system, just as the system is the notion basic to the model and structure, since the term "system" embraces a collection of elements and a set of relations between them. The structure is in fact the grouping of all these elements. The model described presents a system of the second order, resulting from the combination of certain elements of the two systems (confrontation between the FRG and the GDR). Dialectic processes, resulting from conflicts which in turn give rise to the actual movement of the system of the second order, take place within these two systems; that is to say, the German question concerning the whole of Germany is also evolving alongside individual development in the FRG and the GDR. It is here that the phased process of change in the nature of particular elements of the system takes place.

The structural model shows two parallel systems (S_1) and (S_2) in contact along the line *WP*. This line represents the end of the historical path common to both parts of the German nation and the separation in 1945. Three important historical points of reference have been marked on it: *W* = Weimar Republic, *N* = Nazism, *P* = Potsdam Conference; they should be taken into consideration if one is to understand the roots of the situation in Germany after the Second World War. Thus two tangential planes were created (political confrontation) along line *WP*. The systems on these planes (shown in the form of semi-circles) are comparable as concerns the parallel elements (*A* = the social order; *B* = the school system; *C* = the conception of civic instruction) taken here as having a programmatic function, either analogous (similarities) or opposing (differences). The system composed by these elements (the structural units of the content) forms the triangle A_1A_2W which has the function of *tertium comparationis* in this model. This *tertium comparationis* forms the main system here, consisting of educational elements which at the same time have a political role (for example, compulsory schooling, access to schools of different types and levels, content of civic education).

The object of such a scientific method is to evaluate the political role of the two systems (S_1 and S_2), and to point out social successes and shortcomings in the field of education in Germany.

The structural model also shows my line of thought. The arcs draw in towards the centre, representing the structural units of the content, and showing the application of the inductive method. The two parts of a single structural unit (A_1 on the FRG and A_2 on the GDR) provide the data to formulate a partial thesis supporting the general one. This component is represented by the broken horizontal lines. The partial theses are situated at the points where the arrows representing the ends of the broken horizontal lines meet (on the axis *WP*).

This model is only the bare bones of a larger complex, but its construction is such as to allow one to insert into it all detailed problems, and for this reason I consider that it could be of use in formulating more detailed questions and in breaking down the most complex problems.

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PART 3

Research and Research Methods in Comparative Education: Challenge and Response

Introduction

Brian Holmes

In the papers in this section the authors identify major problems, point to the role educational policy may play in solving them, and outline some methodological issues that comparative educationists face in attempting to contribute to the formulation of solutions. The articles present the challenge to comparative education and discuss its possible responses.

First it should be noted that while several of the authors speak of "problems", they make little attempt to give the term a technical meaning. Nor do they strive to operationalise this key term in their approach. This failure is common among investigators whose outlook is pragmatic but who may not consider, as I do, that the process of intellectualising a problem is vital to Dewey's analysis of reflective thinking. Problems may be "operationalised" by reference to explicit theories - the most important of which are theories of *sound* change. Since the basis on which the authors identify their "problems" has not been made clear, it must be assumed that they intend to use the word in a non-technical sense. One difficulty follows, and that is that other workers may well give quite different dimensions to the so-called "problem". In other words, the starting point of many researches in comparative education is open to a variety of interpretations.

The task of replicating studies would be facilitated if the process of problem intellectualisation were made more explicit. It is clear, however, that problems to which alternative educational solutions may be offered can be classified into those which can be seen as (a) arising as a direct consequence of the interaction on education of its socio-economic and political in-

frastructure ' (b) developing in one sphere of the educational sub-system a result of changes elsewhere in the sub-system.

The problems outlined in Eckstein's paper fall into the first category. They result, as he states, from the growth of large cities. It is not quite clear, but of some importance, whether he assumes that processes of growth transcend national boundaries, or that some variables within a metropolitan area are found everywhere while others are unique to a particular conurbation. There may be more similarity between processes of growth than between the pattern of variables used to describe a city.

Anderson's "problems" may be similarly classified. The first cluster relates to the changes which occur in a society when a "foreign" educational system is transplanted into it. Such problems may result from unplanned borrowing or, more recently, be the consequence of planned reform. In any case, the dimensions of the problem and the historical role played by European education make it desirable to "study the world-wide assimilation of 'Western' patterns of education". Anderson's second cluster relates to modes of resolving educational issues. Clearly these problems have their origin in the political structure of a society. Again implicit in the analysis is a theory of social change which assumes that there are "changes in the manner or the content of ... political decisions about education". Anderson sees as a focus of comparative interest the need to "know more about how educational issues become defined as partaking of the central-local tension and what part they play in revitalising local cultures or, on the other hand, in frittering resources for development by casting them over very stony ground, developmentally speaking". Here some problems of political participation are vaguely defined and some of the unfortunate consequences of present modes of decision making identified. Anderson's third problem, as I see it, draws attention to the need for curriculum change in the light of processes of transition to "modernity" of countries in the Third World. The links between this and his other problems are clear. Here is a cluster of problems for investigation. "Western"

education is regarded as a major innovation in many "new nations". How are decisions about education taken and, by implication, how can the processes be improved in order to meet effectively the demands of societal modernisation?

Anweiler's concern is also with curriculum reform. He, too, sees some of the questions for investigation as stemming from the process of cultural borrowing. He points to a paradox. The need for systematic comparative research "for the construction of particular theories or for educational practice" is not yet generally recognised, but "it is easy to demonstrate the strong influence in most countries of American (USA) curriculum research in concept construction, terminology and procedure" often, as he states, by mere imitation without substance. Anweiler claims that one reason why comparative education has made li**le contribution to curriculum research is because its pioneers (id, one might add, many present-day practitioners) were principally concerned about relationships between education and its infrastructure. The driving forces external to educational systems were the object of study for Schneider, Hans and others just as today, in a new guise, the problems which interest many comparative educationists are socio-economic and political.

The point is well made. According to one interpretation, the IEA mathematics study had as its most general objective the measurement of the productivity of educational systems in technological societies. Mathematical achievement was assumed to be one way of measuring productivity. Noonan, too, sees the IEA mathematics study and the present IEA studies as illustrating the unique possibilities and difficulties of conceptualising "problems and solutions" by attempts to "quantify the influence on education and the outcomes of the educational process". To be sure, the mathematics study investigated variables within the school structure as well as those outside it and in doing so attempted, as with most comparative studies in education, to identify contextual elements within education and in its infrastructure. *Relevant Data in Comparative Education* (Holmes and

Robinsohn, 1963) was an attempt to identify and classify variables in both spheres. In any research project a selection from among these variables has to be made although new computer hardware facilitates the handling of a mounting hoard of contextual data.

One objection to a comparative study of the problems of education in metropolitan areas is that the latter vary so much from one region or nation to another. A theoretical solution, discussed elsewhere, is to replace the names of cities - New York, Paris, London, Buenos Aires - by the names of concepts and variables. Such a device, provided the variables can be operationalised and quantified, allows non-experimental research to be carried out. Should this be the touchstone of selection? Of the many general elements or common denominators in the metropolitan environment picked out by Eckstein, five categories were of particular concern, namely:

1. Characteristics of the teacher cadre.
2. Various measures of the effectiveness of the school system.
3. Characteristics of the school system.
4. General characteristics of the cities: social, political, economic, etc.
5. Cultural, that is non-school educational, characteristics of the cities.

Evidently these variables, too, may be classified as "educational" and "infrastructural". Anderson only hints at the types of variable within the educational and socio-economic contexts which should be taken into account when studying problems of social modernisation by the introduction of "Western" education. The development of his suggestion into research designs in comparative education would, I suspect, involve the identification and weighting of variables. If these include, in the Third World, non-Western normative laws, "residues" or "mores", can they be operationalised? Can they become part of the computer's data? One difficulty, if we are to accept classic theories of social

change, is that of penetrating to those deeply and unconsciously held sentiments which motivate behaviour but are not often made explicit in writing or speech.

In looking at the question of the ways in which the curriculum affects the school learning of children, Noonan conceptualises his problem by identifying the persons who make decisions about what should be taught in schools and by considering the education and training of teachers in relationship to the opportunities they provide for children to learn. Parenthetically, I see no statement of a "problem" but only a first selection of contextual elements. These are elaborated by Noonan who then describes the indicators adopted to measure some of the important variables. As in Noah and Eckstein's study, teacher variables receive much attention.

Faced with a multiplicity of variables the comparative educationist has little choice but to select. Over the years a preoccupation with the structure of educational systems has given way to greater emphasis on the content of education and on teachers. The focus of interest in infrastructure variables has shifted from social class to economic investment and more recently to political modes of decision making. The point is that the selection of relevant variables is based upon an intellectual decision which, in turn, reflects a particular set of general theories. No research worker would now maintain that variables should be selected on the basis of the ease or success with which they can be operationalised. Yet the challenge to comparative educationists is still that of selecting variables which are significant in a variety of systems and countries. The comparative educationist may well be asked to make explicit the reasons for his choice and to justify it.

The choice in fact frequently stems from a set of assumptions and theories which together form the conceptual framework of a "discipline" such as sociology, economics, political science or psychology. Workers in each field have built up a core of variables which they consider to be of general impor-

tance and have developed techniques to handle them. Some techniques are shared by all the social sciences, others have been developed in the interests of one or other of them. Can it be said that comparative education has its own unique set of assumptions and theories? Are some of the techniques of research uniquely appropriate to comparative education?

Perhaps a useful distinction from this point of view is between so-called empirical (experimental and non-experimental) elements and conceptual analysis. Philosophers of science have long debated the relationship between these components.

Many writers now consider that theory is a necessary prerequisite to measurement and this is a view I hold. If this is so, how do the normative features of research theory and educational systems affect techniques in comparative education?

Anweiler raises a question which has long been raised among comparative educationists, namely terminology. Concepts such as "curriculum" are debated within the English-speaking community. How much more difficult is it to conceptualise so that consensus can be reached on terms such as *Lehrplan, Lehrplanwerk, uchebnaja programma, plan d'études* and *program nauczania*? It is evident that until operationalised measures of some key educational terms can be established, empirical studies in comparative education will be restricted. This emphasises the need for complementary research which aims at clarifying meaning in non-quantifiable ways. The techniques will be linguistic and philosophical. The successful internationalisation of terminology will depend in large measure on the ability of research workers to place educational terms in a national context. For example, the concepts grammar school, lycée, Gymnasium and high school may be defined less ambiguously by showing how these institutions are functionally related to other institutions in the English, French, German and US educational systems. The logical relationship of these concepts to general national views about individual differences, the nature of knowledge, and the structure of society add to comparative understanding.

Anweiler points to some dangers when preliminary analyses of the kinds mentioned are not undertaken. He states that "scholars must be aware of 'system bias', that is consciously or unconsciously basing their criteria of judgement on the political and ideological system beyond national borders". He illustrates this by observing that "the Marxist science of comparative education, for example, takes as its point of departure Lenin's theory of classes". Lack of sociological research on relationships between education and class in socialist countries is justified on the assumption that there are no "classes" in the Marxist-Leninist sense of the word. The illustration serves to make the general point that research workers start from a set of assumptions which may be associated with a sound "discipline", or a pattern of national norms, or a world ideology. Elements of all three clusters may come together to form a coherent cluster or they may co-exist, somewhat unhappily and inconsistently.

Comparative studies in education can contribute to a solution of problems inherent in the work we undertake. Anweiler stresses that until now comparative education has considered "it as much its task to discover the *peculurities* of pedagogical theories, measures, forms etc., in a socio-cultural system, as to arrive at *generalisations* which facilitate the general and systematic construction of theories". In the field of curriculum research comparative education is already making a contribution to the development of general concepts. It may also be true that comparative studies in the past have helped to establish generally accepted concepts of social class (among non-Marxists), investment, political stability and so on. Be that as it may, one function of research is to contribute to the formulation of these general concepts so that subsequently they may be operationalised for use in cross-national empirical research.

Two major tasks seem, therefore, to be facing comparative educationists at the moment. One is to draw from the other social sciences concepts which can be generalised for cross-national research. The other is to find ways of operationalising a wider

range of such general concepts so that the variety of problems studied can be increased. Success will depend on a continued interest in methodology. Success, however partial, will make it easier for comparative educationists to agree on what problems are important and their characteristics. These may no longer be restricted to those problems for the study of which sociologists, economists, political scientists and psychologists have built up their own techniques. Parenthetically, in the past comparative educationists have sometimes identified a "new" educational problem only to see the systematic investigation of it taken over by non-comparatists. The reports in this section suggest that the processes of problem identification and analysis are as yet weakly developed. There is broad agreement on some major problems which should be the subject of comparative research. Of those, the extent of education and the education training and characteristics of teaching are now of considerable interest. As for context, the way in which these problems find expression in the Third World and in the metropolitan areas commands attention, and shows how concerned comparative educationists are with real systems and situations. The attempts made to refine methods, to make assumptions explicit, to explore the possibilities of finding new techniques and developing existing ones are in the interests of contributing to decision making processes. The challenges today are obvious; techniques of study which will enable more realistic, less ideologically determined responses to be made will hopefully develop in comparative education along the lines suggested in these papers.

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Defining Comparative Education: Operations

Max Eckstein

Any consideration of method must do justice to the practical as well as to the theoretical business of research. While the first part of this paper (see Noah "Defining Comparative Education: Conceptions") has concerned itself with defining comparative education conceptually, in the second part we will consider how these principles may operate in executing a particular piece of comparative research. Reference throughout is made to an on-going study entitled "Metropolitanism and Education", funded by the Ford Foundation and sponsored by the Institute of Philosophy and Politics of Education at Teachers College, Columbia University.

This project arises out of concern about the growth of large cities all over the world and the vexing problems that schools are having in many of these cities. The metropolis, we believe, is already the major type of social community in many countries; it is becoming more and more common around the world. The importance of this development lies in the fact that there are special, even unique circumstances that characterise the metropolis, a pattern of social, economic and political conditions which signifies a special quality of existence. Inevitably, this must be bound up with education and with schooling. The conviction that metropolitan phenomena transcend national boundaries is a fundamental assumption of this study.

A second base from which our work proceeds is the idea that if comparative studies are to be of more than merely academic interest, they should take cognisance of the specifically comparative aspects of methodology as a means of illuminating important educational issues.

The general scope of this work then is to study the nature

of education in the metropolis, seeking answers to such questions as:

1. What are the general elements, the common denominators of the metropolitan environment?
2. How do they interact with specifically educational phenomena?
3. What are the educational correlates of metropolitan processes?

The current phase of our work is concerned with just one sub-section of this broad topic, the characteristics of teachers, and the effectiveness of the school systems in four large cities: London, Paris, Amsterdam and New York. The central guiding proposition is that, notwithstanding the various arrangements which specific cities and nations make to organise and administer their educational systems, and to deal with their large, mobile and varied child populations, the key to their success in meeting these responsibilities is the nature and quality of their teaching cadres.

For the time being, then, we are mainly concerned with five sets of data on these cities:

1. Characteristics of the teacher cadre.
2. Various measures of the effectiveness of the school system.
3. Characteristics of the school system.
4. General characteristics of the cities: social, political, economic, etc.
5. Cultural, that is non-school educational, characteristics of the cities.

The first two are the meat of this study; variables and indicators on which data-collection is under way are listed in Sections I and II of the Appendix. The remaining three categories are contextual data for this work, which will also serve as necessary background data for subsequent studies within the same general topic (see Sections III, IV and V).

With respect to this particular phase of the work, our general propositions about the relation of metropolitan culture to schooling translate into the following types of statements:

Firstly, that metropolitan teachers differ systematically from their national counterparts (they are probably more mobile, younger, more amenable to innovations, more open to change and variety not only within their professional lives but also in their life career patterns, better qualified and more varied in social origins);

Secondly, that the metropolitan school system produces a broader spread of results, as measured by various types of achievement criteria; is more highly developed, as a system, in specialised educational provisions and organisations (e.g. in providing for special groups of children); and is more open to public criticism and pressure.

Moreover, we submit that the differences within nations (that is, the departures from the national norms represented in the big-city data) are similar from nation to nation. Teacher characteristics and patterns of big-city school system success (or failure) will not only differ from their respective national norms, but the differences will be of similar kinds and extents, irrespective of national norms.

From the methodological point of view, this approach raises a number of important questions. In this investigation, we are attempting a cross-national study of within-nation differences which we believe are common to many nations. Our horizons are set beyond the type of work which replicates the same line of enquiry in several countries *seriatim*, points at their similarities and differences and assigns the latter to the uniqueness of a national syndrome. We hope to pare away this large residue of the "unexplained". For example, in our study, we may find that teacher departures from national norms are not consistent and that, in some respects, Paris teachers do not differ from French teachers at all, or that they differ in ways that are quite at odds with the ways London teachers differ from those

of England and Wales. We could leave it at that and conclude that this is due to the individual peculiarities of the French and English cases. But, if we are to maximise the potentialities of comparative work (in contrast to merely using international data) we must go further. We must assert the existence of some variable or group of variables, present in *both* countries. We must assume that this variable is definable, observable and measurable. We must infer that its effects are different to the extent that its presence varies in a particular situation. Thus, instead of explaining the French pattern by reference to a particular French characteristic, we seek to explain it by reference to a general variable. In this way, we are attempting to achieve explanations of a general nature, a form of a general "law".

This explanatory leap is made possible only if we proceed at two levels of data collection and analysis, the unit or case (teacher and school success characteristics in each city) and the system (the more general characteristics of education and the broader socio-cultural context both metropolitan and national) (see Przeworski and Teune 1970, Chapter 3). Examples of the kinds of statements we would hope to make at the conclusion of the study are given later in this paper (see p. 168).

Using "the metropolis" as the case for investigation raises a series of practical problems. We have emphasised that the process of comparative investigation is in principle the same regardless of the size of the unit of comparison. The units or cases employed could be larger or smaller than nations, so long as the choice is appropriate to the substantive problem under investigation and that cross-national validity of the data is observed. However, when comparing large cities across national boundaries, three problems loom large. The first is that many of the educational data are obtainable in national aggregate form but not for cities. The second is that where aggregate data are available for large cities, the national definitions of "city", "urban", and "metropolitan" are rarely, if ever, the same. Thirdly, many of the data from the big cities cannot be compared

across nations directly but must somehow be translated into other terms before comparison in order to take into account important national peculiarites.

These day-to-day research problems are best illustrated by some specific examples. Ideally, our definition of "metropolis" is a large population centre comprising both city proper and its suburban extensions. It is characterised by social and economic heterogeneity, high levels of population mobility, and a disproportionate concentration of skilled manpower and economic activities of specific types. Though we are interested in the functional whole, a cultural rather than a geographical area, in fact we are limited by existing definitions, largely administrative, for these are the categories in which the data for this study will have been collected. In the case of London, for example, since the recent reorganisation of local government, it is now possible to obtain data for the Greater London Council (GLC) area, a more rational unit for comprehending the metropolis, as well as for the Inner London Educational Authority (ILEA) which is contained within the GLC and is more or less identical with the former County of London. The newly established Paris Region is a step in the same direction, though most educational statistics are obtainable only for the previously existing administrative units for education *(départements, académies)*. However, the administrative units within which education and most other social services are administerd in New York City and Amsterdam remain those of an earlier time, before urban sprawl took on its present gigantic dimensions. (There are models of how material can be pieced together, e.g. the series of works analysing the economy of the New York Metropolitan region - Hoover and Vernon, 1959.) Consequently, until we are able to assemble and consolidate data for more appropriate functional units, we are forced to make do with what exists: the ILEA, the *Département* of the Seine, New York City and Amsterdam. (Note, however, that even given the more inclusive geographical/administrative boundaries we should like for this study, there can be no fixed definition

of"metropolis" for all our purposes. What might suffice for this study will probably be inappropriate for other dimensions of the topic. In another investigation we might wish to define our unit of comparison according to a given travelling time from the town centre, for example, or from certain educational resources in the city.)

Once data have been gathered for the city and the nation, it is necessary to translate them into a form which makes cross-national comparison possible. We seek to do this in the following manner: For each of the indicators, the figure for the nation is equated to 100. The corresponding figure for the metropolitan area is then expressed as an index, with the national average used as the base. Inspection of the metropolitan indexes across nations is then a simple matter and makes possible statements about the direction and extent of deviations by metropolitan teachers from the national norms. An example may be helpful here.

Take the variable, "age of teachers", and the specific indicator, "percentage of full-time teachers under 30 years". National and metropolitan averages are found to be as follows:

	% of teachers under 30 years	Index
England: national	32.4	100
London	42.0	130
United States: national	33.9	100
New York City	43.1	127

The study is dependent on secondary sources which fall into three main categories:

1. Intra-national studies and statistical series emanating from public institutions (the State and the City).
2. Intra-national studies by independent researchers in education and the social sciences.
3. International cross-national research (essentially the work of the IEA Project).

Only in the last example is the problem of international comparability somewhat diminished. And still, as in the independent studies done within countries, we must be aware that work done for research objectives other than our own is not easily abstracted and adapted to other studies. It is not our purpose here to state all the familiar problems incurred in research relying on secondary source materials. Nor need we reiterate the host of difficulties in quantifying concepts for social scientific research while attempting to ensure accuracy and validity. These are widely known, extensively discussed, and will continue to occupy the attention of researchers. Having little to add on those aspects of methodology, we have chosen to limit ourselves to those features which are essentially comparative.

Nonetheless, we are continually confronted with the two-fold issue of comparability. First, there are the familiar difficulties to which Matthew Arnold drew our attention, the differences of meaning among terms that appear to signify the same thing but which may not (enrolled, *eingeschrieben, inscrit*). In these circumstances a given indicator is unreliable because the instrument of measurement is different in the several cases. Second, there is the problem of ensuring that the indicators used are functionally equivalent among countries as measures of the variable being studied. On these issues, little that is new can be added. We can only call for eternal vigilance and thorough comprehension of the inner workings of the systems studied on the part of the researcher.

So far, we have talked of the conceptual framework from which this study springs, the methodological framework in which it is set, and some of the special data problems involved. It now remains to suggest some of the kinds of findings we would hope to achieve from the study. These should again illustrate the pivotal point stated above, that a comparative study in the sense that we have described it must involve analysis at two levels at least. Our conclusions, then, should comprise statements about within-nation relationships; but they should include attempts to ex-

plain variations among these relationships by reference to system characteristics. Thus, one group of conclusions would be of the following type:

1. Metropolitan teachers are characterised by the following differences from their respective national norms: more mobile, younger, more professionally involved, etc.
2. Metropolitan school systems are characterised by the following features: overall higher pupil achievement in standard subjects, greater deviations from the mean in such achievement, a more developed system with facilities for special groups, lower teacher-pupil ratios, higher expenditures per pupil.
3. The more (mobile/educated/youthful/professionally involved etc.) the teacher cadre of the metropolis, the more successful the school system as measured by (achievement/development of the system, etc.).

A second group of conclusions would be of the following type: While metropolitan teachers are more (mobile, youthful) than their national counterparts, such differences are less marked when there is (a centralised national education system, a national salary scale, a limited range of social backgrounds from which teachers are recruited, a small number of teacher training institutions, etc.) or when (the dominance of the metropolis in the nation is greater/lesser).

Our purpose in attempting to define comparative work has been to explain and justify a particular research strategy and to relate it to the tactics of cross-national investigation. Noah presented a methodological framework in the form of concepts in his paper. Here these have been operationalised in a research programme which is currently being followed. It is, of course, but one example of what might be done. In many respects, it is a far cry from the work of our predecessors (and contemporaries) who incline towards the descriptions and insights of humanist, historian and philosopher. But I believe that the conceptual and operational model offered here represents an important step towards the two

desiderata which comparative research must demonstrate if it is to justify the efforts of those working in the field: a focus on important subjects relating major educational and socio-political issues of the time; and a powerful system of proof for whatever conclusions it achieves. It is the latter which requires a methodology through which explanatory generalisations are reached and empirically supported, and it will be at this point that the explanatory and heuristic power of social scientific work can serve as a link to the more familiar and traditional comparative works so that each may enhance the findings of the other.

APPENDIX

I. Teacher Characteristics

Variables	Indicators
Natural	Age Sex
Social:	
Social origin	Father's occupation Father's education
Social status	Social origin of spouse Ownership of home Ownership of car Possession of telephone
Economic status	Annual salary Supplementary earnings Teachers as % of labour force
Educational:	
Level of general education	No. of years of post-secondary education (full-time) % holding university degree
Level of professional education	% holding professional qualification % enrolled in in-service training

Professional:	
Commitment to profession	% leaving teaching per annum % membership in teacher organisations % active in teacher organisations
Quality of teacher cadre	% with less than 3 years teaching experience % involved in innovative school programmes % lacking full qualification for post occupied % of part-time teachers % teaching levels or subjects for which they were not trained
Other:	
Civic involvement	Frequency of membership in non-teacher organisations % travelling abroad during previous year
Cultural activities	No. of professional journals taken No. of non-professional journals taken No. of concerts, theatre performances attended

II. School Success Characteristics

Variables	Indicators
Academic success	Enrolment rates in non-compulsory education Average class size Achievement levels in standard tests Success rates in public examinations Teacher-pupil ratios at specified levels
System effectiveness	Ratio of pre-school and special education enrolments to primary school enrolments

No.of school closures due to pupil, teacher or parent action
Per capita pupil expenditures
Ratio of classroom teachers to other educational employees
% of school building in inadequate condition
% of school building overutilised

Public support of system

Volume)
Targets) of criticism of school
Sources) system
Amount of financial support
Extent of objections to increasing financial support

III. Metropolitan Educational System (excluding higher education, private schools, part-time and further education)

1. Organisation and administration

a) Major administrative levels

b) Name and composition of highest policy making unit

c) Sources of financing educational budget

d) Proportions of ed. budget from each source

e) No. of schools

f) Types of schools (by level, by specialisation)
No. of schools of each type

g) Chart of municipal education office, showing international organisation, special bureaux, etc.

h) Administrative boundaries for education. Are they the same as for other municipal/metropolitan affairs? If not, how do they differ?

i) Administration of education in contiguous metropolitan communities (suburbs) where these are not within metropolitan boundaries

2. Personnel

a) No. of pupils

b) No. of pupils by level/type of school
by religion
by ethnic group
by origin (rural, foreign, etc.)

c) No. of employees of school system

d) No. of classroom teachers (by level/type of school)
e) No. of administrative personnel

IV. Characteristics of the Metropolis (trends where possible)

1. Demographic

a) Size (square km.)
b) Population
c) Density
d) Vital statistics (birth/mortality rates)
e) Age distribution (size of age cohorts)
f) Relative dominance in country
g) World rank

2. Political /Administrative

a) Governance of the metropolis; levels and powers of admin.
b) Relation of a) to regional or national government
c) Schema of metropolitan administration; No. of personnel
d) Administrative boundaries (by functions), related where possible to 1. above
e) Relation of administrative boundaries to metropolitan region

3. Economy

a) Size and distribution (through sectors of the economy) of the labour force
b) Unemployment rates/mobility
c) Average earnings by sector
d) No. of businesses, stores, factories, etc. by size of operation
e) Proportion of the national economy located in metropolis (by selected economic activity)
f) Metropolitan import/export by selected activity, national/ international
g) Patterns of land usage in metropolis (e.g.residential, industrial, commercial)

4. Social composition

a) Economic status (by major groupings) and distribution of population
b) Geographic distribution of population by economic status
c) Geographic distribution of population by ethnic, religious, educational characteristics.

d) Origins of population (native-born, rural, other urban)
e) Patterns of mobility into metropolis
f) Patterns of mobility within metropolis
g) Existence and dimensions of neighbourhood homogeneity
h) Types and condition of housing
i) Types and extent of delinquency, crime, etc.

V. Metropolitan Education (other then public school system)

1. Formal schooling

a) No. and kind of private schools (full-time, excluding higher education)
b) No. of pupils and teachers
c) No. and kind of institutions of higher learning
d) No. of pupils and staff
e) No. and kind of institutions of higher learning; no. devoted primarily to research

2. Out-of-school activities

a) School-centred clubs and activities for youth
b) Club and youth activities sponsored by voluntary agencies (by agency)
c) Adult education

3. Cultural facilities

a) No. and usage of museums
libraries
concert halls
orchestras
theatres
cinemas
b) Extent of street theatre, music, etc.
c) Newspaper and journal circulation
consumption
d) Radio and television consumption (No. of stations available)
e) Amount of tourism (from nation)
(from abroad)
f) Amount of traveller's accommodation available
g) Amount of traffic: airport
railways
seaport (if appr.)
car

4. Quality of Life

   a) Buildings, decay, congestion, etc.
   b) Image or tone of the place

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Three Methodological Challenges for New Approaches in Comparative Education

C. Arnold Anderson

This paper is not a discussion of how to apply new computer hardware to the mounting hoard of data about the nations of the world and their educational systems. Nor is it a plea that we devote greater attention to comparing how different phases of the educational process relate to each other than to making inter-societal assessments of how education relates to salient aspects of societal life. Both topics are important, as are several dozen others. Instead I adopt an integral notion of methodology that combines three research-bred substantive issues with suggestions for appropriate techniques of research. I would not claim that these three issues are among the most urgent tasks for our field, but I go only so far as to say that these three topics do offer scope for innovative handling of data to probe stimulating questions. Each of the three questions deals with the modes in which societies embrace educational activities as part of an on-going socio-cultural whole, yet a whole that sufficiently resembles other societies as to tax the ingenuity of scholars who enjoy indulging in a comparative way of looking at things.

I. *The Process by Which Borrowed Educational Systems are Rooted in New Social Contexts*

For well over a century we have been told that educational systems cannot be transplanted into "foreign" societies. Yet "Western" (really Greco-Roman or older) structures, content, and methods of schooling have been adopted by more and more societies and in each enthusiastically supported and used by the people. The reasons that induced the borrowing are various: to undergird a

desired scientific technology, to develop systems of keeping records adequate to support a new polity, or a craving to gain respect from admired sponsors of new ways to use money, machinery, and mobility to create a more open society. But the reasons for the borrowing interest me less than do the tantalising puzzles as to what processes bring about the endlessly diverse syncretisms of a rather uniform educational system with unique, traditional ways of life. In every instance individuals have been motivated to undergo the rigours of learning to inscribe and read cabalistic signs and to acquire allegiance to beliefs and actions that bring one under the risk of ostracism from one's natal society. We know that sometimes it is intrinsic interest in what is taught (as when men passionately wish to read the comforting Christian scriptures or when they find unending pleasure in the unfolding puzzles and manipulations of mathematics). The motive can, by contrast, seem quite crass: to learn how to keep accounts or to copy correspondence for the arrogant foreign trader in order to obtain cash with which to buy steel nails or a more glamorous bride.

Adoption by a society of new educational organisations will tie the society into the world economy or it may provide moral support for the delegate of a minuscule state in chastising the mightiest nations in debates at the United Nations. But first the society has had to bring itself to entrust its children to foreign teachers in order that the children might learn things of which the parents had never dreamed. In turn some of those pupils become instructors, local schools are linked into national systems, new procedures are invented or adopted for levying on private means for what have come to be viewed as collective ends. Agreement must be reached on what is to make up the lessons, first for a few and then for many years of schooling, learning to test the quality of local schools against those in other countries, the names of which may literally be only shibboleths to the elders of the tribe.

We know astonishingly little about what makes up these steps for any of the "new nations", perhaps even less than we know about

how Greco-Roman schools were assimilated into Puritan England. Just how a new university scholar senses that an article in his exotic speciality "does not stand up" is among the most subtle of the skills that have been successfully taught over the world, in the course of which an international society of learned men was born. As case studies multiply, we become more aware that even full-hearted acceptance and diligent "copying" of the schools that trained the people who for so long nursed or abused one's own peoples in the days before independence do not bring benefits uniformly to each individual district or to all tribes. Painfully it is learned that zeal to ensure that a nation's teachers are teaching civics "loyally" may be just the mood that incapacitates those teachers to teach science or to tempt their pupils into fearless individualised ways of learning. We are disconcerted to observe how supinely a ministry yields to exhortations to use schools to produce not a new man but a "Tanzanian man" or a "Peruvian man" and then are puzzled as to why few pupils are learning anything well or joyfully.

Though each of us probably would hazard a definition of "modernisation" and would be prepared to sketch out some of the ways in which that outlook is nourished by schools, few would even try to draw the blueprint of just how "modern" education is going to be worked into the texture of any given society. Yet the paradox confronts us every day: foreign educational systems are assimilated successfully and they nestle down into a familiar and congenial compatibility with the other institutions of the new host society. In advance we can say little that is useful as to what educational system will "fit" a given society, yet after a short time of "running in" a multitude of new folkways convinces us that the new schools are no longer foreign but a locally evolved variant of the familiar species: educational system.

This accommodation occurs partly because the new educational system comes out of the same historical nexus as the new technology that "developing societies" strive to adopt. But the accommodation is made possible also by the fact that any formalised

system of schools has many functions.

1. Schools help individuals to learn how to do part of the work by which the society subsists.
2. Schools instruct in many skills whose utility grows as a society becomes more complex (such as capability for organisational management).
3. Schools help children to develop new self-conceptions as they move from one way of life to another and help them to transmute old loyalties into equivalent new ones.
4. An arena is provided within which potential leaders emerge, often through the medium of quite unscholarly activities such as sports.
5. Always youth are indoctrinated, or appear to be, into values that link the past to the future that the society's leaders are striving to bring into being.
6. And, of course, if "development" seems to be occurring, much time and resources go into preserving and improving the seemingly essential system of education itself.

Each function is vague, thus allowing trial and error to shape a system of education that meets universal tests but which is also undeniably part of the society it serves; no successful societal transition obliterates the old before the new is disseminated. And because each function is so complex, each offers a means by which the imported education can become linked to traditional (and partly also to newly imported) kinds of non-formal education that always have so much deeper roots in tradition than does any consciously formalised procedure.

But many will think this discussion to be fruitlessly abstract Certainly some will indict the writer as a dogmatist. But the plea is that we study the world-wide assimilation of "Western" patterns of education. We need to learn how the foreign educational pattern becomes acclimatised sufficiently to usefully perform uniquely local functions along with replications of what has been going on for generations in thousands of classrooms among children who may

never have heard of the new societies in which pupils now are learning similar things in both similar and unique ways.

II. *Modes of Political Resolution of Basic Educational Problems*

Societies differ in the extent to which they allow what experts in most countries call "problems" to emerge to the level of public discussion. Often a problem is pushed aside with a casual comment, for example, that "only the most intelligent can do university work, so there is no difficulty in choosing the fortunate individuals". The problem may actually be debated in a legislature but dismissed with similar clichés or dicta. Elsewhere investigative commissions are set up or a vigorous educational research system is actively operating, so that cogent evidence almost always is considered even though it seldom is decisive.

I speak of modes of "political" (meaning "collective") handling of educational issues because it is clear that a wholly private-sector supplying of education will rarely be seen anywhere during the next generation or so. But, however the balance swings between public and private educational agencies, the sheer magnitude of educational operations and their fiscal weight ensure that political agencies of the society will have to take decisions about this sector. Nor does it suffice to say that "liberals are more forward looking in education" or similar meaningless phrases. We need meticulous research on the process by which educational policies are decided in different societies - or on which agencies the power of decision devolves. Those who have followed the work of the Organisation for Economic Co-operation and Development over the last two decades have noticed that men are more and more often talking about the "social demand" for education. Formerly, there was a fashion for linking occupational projections to "manpower planning", but that school of thought gave way under the intrinsic inconsistencies of the position once professional critics began to scrutinise it carefully. But it becomes evident quickly that "social demand" really is used to mean "private demand", i.e. how

much schooling will people use if the price to the consumer remains unchanged or is lowered through subsidies. The speed with which these sophistries or over-simplifications spread amidst the most diverse societies has been astonishing. Yet almost nowhere have the discussions among planners or legislators been documented and rarely can we trace the assimilation of this way of looking at educational policy into the work of governments.

Paradoxically, we have known for decades what recently has been demonstrated, that the upper levels of schooling are supplied to the "rich"disproportionately to the cost of the "poor". Evidence has been accumulating which suggests that the ratio of benefit to cost for university education normally falls below that for elementary education, yet growth in enrolments and expenditures at the tertiary level almost everywhere outpaces that at the lowest level of school. Nor are these anomalies special to either "oligarchic" or to "capitalistic" societies any more than to the "welfare states". The politics of education are more subtle and transcend simple rubrics of class and of interest group.

Aside from a general confidence in the worthwhileness of expanding educational systems, perhaps the strongest force making for more nearly equalised benefits and costs has been parochial and localistic loyalties and jealousies. Schools and colleges are precious symbols of community or province against the omnivorous central state and from this tension have arisen innumerable populist policies in education, by no means all of them statesmanlike. One can hardly deny, however, that the identification and strengthening of the brokers of local interests is another name for one phase of development; development always has a local habitation and always is domesticated to particular districts. To be sure, the disparities among localities in enrolment rates, say, may approach the magnitude of disparities by social status, race, or tribe. But what we need to know more about is how educational issues become defined as partaking of the central-local tension and what part they play in revitalising local cultures or, on the other hand, in frittering resources for development by casting them

over very stony ground, developmentally speaking. These parochialisms also diminish the capability of civil servants and of experts to hide their ignorance behind secrecy or bureaucratic obfuscation.

Changes in the manner or the content of these political decisions about education are marked by shifts in how men interpret "equalisation". It is one thing to speak of "equal opportunities" to attend secondary school; it is something else to think of "equal learning", which involves compensatory practices, more "open" admission, etc. And it is still a different thing to frame policies in terms of "equal benefits from education". Yet in many contemporary controversies about "democratising education" these three meanings become inextricably tangled. Each question raises questions of cost, and few publics can bring themselves to face that issue openly.

The third of the foregoing meanings implies that formal education is a principal determinant of men's fates; however, though it is a major factor, we know it is not decisive generally. Each of the three policies, if implemented, would distribute the population differently in terms of amount,quality, or type of education and training. Problems about each variant and about many other educational choices are being decided every day in some political forum: to build a giant stadium and thereby preserve the corrupting influence of sports upon schools, the choice of the vernaculars in which to print textbooks, the decision that procuring textbooks shall be a dignified activity while the distribution of books to pupils is a menial task, the inducements used to retain technical specialists in the military or to release them to industry, and so on. My general point is that we know for any country almost nothing of the process by which established attitudes about education in relation to the rest of society are processed by the political machinery into arrangements that are distinctive of the given polity, yet similar in essentials to the decisions in other countries.

III. *Can the Products of Cosmopolitan Education Produce an Integral Society?*

There is a familiar similarity among schools in all countries that seek to become part of what is called "the modern world". That resemblance is due not only to diffusion of pedagogical practices from a few advanced centres, but it reflects also an aim to inculcate certain kinds of skill, knowledge, and attitude upon which alone can be erected the "technological" way of life to which countries aspire- seemingly the only technology that gives us a chance to escape the Malthusian trap.

I find it convenient to divide the content of school lessons (especially in pre-university years) into four categories: (a) cognitive universal materials such as arithmetic or science and (b) cognitive parochial materials such as "objective" local history seem to be rather distinct from (c) affective-universal materials which we fancy to be found in "great literature" or in widespread themes of folklore and (d) the affective-parochial content that is best represented by the tortured sophistries of nationalistic propaganda. Clearly the distinction of "objective" versus "subjective" carries us no distance in this effort at a taxonomy. Equally clearly, there is a "moral" aspect to each of the four sorts of material. Thus, in science pupils are expected to acquire a commitment to accuracy and to honest treatment of data. "Civics" or "local history", to be sure, are saturated with moral elements in both a narrow and a broader sense.

Even a cursory review of controversies about the curricula that might be most suitable for schools in the "Third World" familiarises us with the dilemmas that this or any equivalent taxonomy of curricular material presents to the educational specialist or the local statesman. Improvement of agriculture depends upon peasants learning to follow strict schedules in applying fertiliser in proper amounts. But political unity of a new nation can only be effected (at least quickly it would seem) if local history and literature are allowed to slide over

into outright legends and the calculating "economic man" is supplemented or replaced by the man of faith with deep loyalties to revived or invented traditions.

To manage the transition to modernity- at least in the contemporary politico-economic conjuncture of world conditions - is difficult until a society has produced a few generations of individuals who can rise above traditional tribal rivalries and alliances and begin to analyse social activities in the modes that have come down to us in the Western logical tradition. While this deracinated, if universal or ecumenical, outlook is emerging in an epoch that is striving for cosmopolitan viewpoints, it is difficult to keep the ecumenical outlook in balance with the particular traditions that local or national leaders had learned even before they acquired their permanent teeth. There is affinity between the local and the populist policies just as focus upon national issues tends to foster élitist outlooks and policies. The cognitive-universal material that underlies the technology upon which modern societies rely is very exotic, and in dozens of new nations the leaders were put to learning this exotic material in schools that labelled them already as élites even from their first days in school.

Unless they are willing to accept the risks and the costs of an iron-fisted centralism, leaders of new nations dare not encourage the reification of sub-cultures. Indeed, many of those cultures are artificial creations modelled on examples learned about in "Western" books and without any "objective" historical validity. But leaders face risks also if they try to build national unity on personal charisma, even if bolstered by compliant technocrats. Once the parochial-affective sorts of sentiments and political appeals are given salience, one cult of irrationality gives birth to dozens of others. And when politicians or others begin to talk about relevance, it is easy to slide over into the demagogy of tribalism, be the latter historical or made up from scraps of bizarre customs and simplified themes selected from the "high culture" of some particular people in the nation. Yet, despite all the logical fallacies exemplified in writings

about school curricula, any rationale for a curriculum must speak of "relevance", though that justification can quickly become a tawdry simulation of innumerable anti-modern themes.

But one can never overlook the fact that vital programmes with promise for "development" exist only in particular places, not in cloudland. And if such programmes are to fare well, local leaders must be supported in their efforts to represent local projects as part of the overall programme for development. These local leaders, however, live precarious political lives unless they legitimise themselves by a syncretism of new national themes and the old local traditions that characterise their followers.

Citizens of all nations can see a new and more complex occupational structure being generated before their eyes by what we call "modernisation". But the functional unity of that occupational structure is an arid thing having little emotional appeal; it will stimulate few new religions and incite few appealing political slogans. The "development process" has to be given a dramatic appeal, yet the appeal must not cut away the foundation of the programme that lies in the lessons about arithmetic, chemistry, or accounting.

All these issues have been present in our Western societies for generations. But our "development" came slowly and in leisure. Usually we knew who we were as peoples before we began to think about economic progress. But in today's new nations men must organise their minds and their sentiments to produce development while also trying to make clear to each other just who belongs to the group undertaking this great adventure. Hence, in these nations in a hurry, the potential binding strength of the parochial parts of culture has more importance than it had in our past. Too much concern to reassert or revive the parochial unities will atrophy the universal themes that international educational agencies are attempting to foster as a solid basis for the material development that must take place if there is to be any nation at all. How to define the elements

of this complex problem in counterpoint defies our best efforts. How to prescribe solutions that approach an optimum and that will be accepted by national leaders will tax all our powers of statesmanship and our ingenuity in devising ways to delineate the problem in any given society.

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Curriculum Research from the Perspective of Comparative Education

Oskar Anweiler

The Problem of Cross-National Comparative Curriculum Research

The international mushrooming of research and debate on curriculum spreading from the USA since 1960, has made it one of the central themes of pedagogical theory and school reform in a wide range of countries. For example, as was shown by the Congress of the Comparative Education Society in Europe, held in Prague in 1969, because of the analysis of curriculum reforms in various educational systems, it has been possible to ascertain, juxtapose, compare and to a certain extent to generalise theoretically upon the effective motives, the general desired objectives, the procedures applied and decision processes used in both curriculum development and its practical implementation. Nevertheless, it became equally clear on that occasion that the common basis for a cross-national comparative treatment of curriculum problems is still small and that inadmissible analogies are often deduced or assertions claiming to be generally valid formulated overhastily, on the basis of particular assumptions, contextual conditions and objectives.

Between the empirically obtained data on curriculum development in many countries (Springer, 1969) and the demand for a conceptual scale or structural concept on a comparative basis (Robinsohn, 1969), there still looms a considerable gap. This is also true of those studies which explicitly devote their attention to "intersocietal implications for curriculum" (Bauchamp and Bauchamp, 1967), and yet still explicitly undertake a set of problems (North American in the case cited).

It is of course not accidental that the research situation we have outlined is such as it is. Indeed, the spectrum of

curriculum problems in individual educational systems is influenced to a considerable degree by "global", that is supra-national, trends in the social and scientific sphere. Nevertheless, the necessity of systematic comparative research for the construction of particular theories, or for educational practice at any given time is in no way generally recognised as yet, nor has it penetrated the general consciousness. This seems to be contradicted by the fact that the theoretical discussion on the curriculum problem is international in one respect at least: it is easy to demonstrate the strong influence in most European countries of American (US) curriculum research in concept construction, terminology and procedure, often in the form of a mere imitation of terms in fashion, without real substance. This process of assimilation in itself is a noteworthy phenomenon, since it clearly shows the international nature of the problem; on the other hand, closer examination may reveal the scientific problems of such an assimilation, stretching from theoretical and conceptual questions to practical policy ones.

The academic discipline of comparative education has played no significant role in the genesis and development of contemporary curriculum research, either in the US or other countries where it is represented. As mentioned, comparative education has only recently become involved, either by itself attempting to make a comparative and descriptive analysis of the process of curriculum reform, or by aiming at the development of a comprehensive conceptual system on the basis of comparative analyses of different theoretical designs or already existing curricula. Here, however, a whole spectrum of difficulties and problems emerge, some of which we will discuss further below.

First, however, we must explain a long avoidance of curriculum problems in comparative education. From the development of this discipline we have seen that both its "classical" representatives and the more recent methodological antipodes regarded above all the development of educational systems in their specific social and cultural context as the principal subject of compara-

tive education; contrarily, problems arising from a comparison of educational objectives, content of education, forms and methods of instruction, and educational styles, etc. - in short, of the *didactic* structure - were only rarely taken up. Comparative study concentrated above all on the general political, social, economic and cultural conditions, and driving forces (*Triebkräfte*) of systems of education and learning, and the processes of change within them; it seems only now to be occurring to comparative scientists that it is also part of their task to seek out these problems where they appear most clear (complex though they may be) *educationally*, in the problem of curriculum, that is.

In the following pages I attempt to outline the contribution comparative education could make to cross-national, comparative curriculum research. This formulation itself shows that it is finally a question of a multi- and interdisciplinary field of operation, in which the discipline of comparative education can play only a limited, though specific, role.

National and International Conceptualisation and Terminology

It has already been stated that curriculum research originating in the USA - to put it pointedly - has led to the invasion by a new lingua franca (of Anglo-Saxon provenance) of the educational terminology used in the nations of Europe, and that this has had the effect of suppressing or changing certain older terms. This process has already occurred in the scientific languages of psychology and sociology; it is becoming particularly evident at present in the terminology of cybernetics. For our purposes the process is most significant where the problem concerns the comparability and satisfactory translation of important terms in the field of curriculum research, as well as changes in meaning of educational concepts under the influence of curriculum terminology. Let us just mention in passing that this is not only an essentially scientific problem but also a more general question of public communication.

The introduction into technical or general usage of new basic educational concepts or the revival of old ones from a differently structured system of educational theory or school practice (in the Federal Republic of Germany, for example, of the "curriculum" parallel to, or instead of, *Lehrplan*) may signal a changing awareness of problems or an interest in new areas of scholarly investigation. This is undoubtedly the case as regards the assimilation of the term "curriculum" into the educational debate in the German Federal Republic. The definition of its conceptual content and levels of meaning has led to a more acute methodological and methodical awareness (Nipkow, 1971), so much so that the phase of "naive assimilation" may soon be considered over.

Nevertheless, this is as yet no indication of an international and homogeneous application of the concept of curriculum, nor of the terms used in the sphere of curriculum theory (for example: qualifications, situations). Just as there is a considerable difference in the Anglo-Saxon realm between American and English terminology, which can lead to confusion at international conferences, so the transferability and use of curriculum terminology in any educational system can be extremely problematic.

This should be more closely exemplified in connection with linguistic usage in a few socialist countries. In the German Democratic Republic the traditional German designation *Lehrplan*, or *Lehrplanwerk*, is used, and only in translations into English is "curriculum" given as an equivalent. The expression "curriculum theory" is also added to further explain the concept of the theory of general education (Neuner, 1970).

In the Soviet Union, the term *ucebnaja programma* (literally, "programme of instruction") covers in a similar sense the study content and objectives of the specific school subject; the *ucebnyj plan* (literally, "plan of instruction") includes the time-table of subjects in the individual school grades.

In Poland, to give a third example, the exact terms are

program nauczania ("programme of instruction") for the content of the syllabus and *plan nauczania* ("plan of instruction") for the time-table. Occasionally, but not as a general rule, the terms "curriculum" or "school curriculum" are used, here too, in English translations.

In all three cases we are concerned with a traditional linguistic usage, which was current in Russia, for example, long before the Revolution of 1917. The question thus arises as to whether it is admissible to use the expression "curriculum" in German for these study plans (in the sense of syllabuses) and the designation *Curriculumreform* for the reform of study plans, as sometimes is done (Glowka, 1970). Such a translation would only be warranted if it concerned the same or at least approximately the same theoretical frame of reference. But here doubts beset the comparative educator. He must point out that the factors valid for certain, but by no means all "Western" educational systems which characterise curriculum as being an "open" and "dynamic model of aims and processes, dependent on "social consensus", have little or no validity when the creation and application of "stable" study plans (even for a limited period of time), based on objectives which are fixed by central institutions, is a fundamental characteristic of the whole system.

From this basic viewpoint, then, any transfer of the term "curriculum", without further elaboration, to the Socialist countries can easily give rise to misunderstandings and mistaken conclusions. When even the development of a homogeneous pedagogical terminology in educational systems with "central written directives on school policy" meets logical and technical obstacles (Stierand, 1970), then even more careful terminological consideration is required when the questions of comparability, translation and analogy arise. The international dimensions of curriculum research would properly speaking require (a) a comparative list of central terms related to curriculum in several languages, with their usage, and (b) on this foundation, a minimal catalogue

of standardised terms in several languages, which could serve as an accepted basis for international communication over a certain time. This would be a worthwhile task for an international research institute or organisation.

The Danger of System- or Ethnic-Bias in Curriculum Research

It is obvious that the terminological and conceptual problems mentioned above are related to matters of content. An epistemological problem of some importance in comparative education emerges from the fact that it must be highly aware of the danger of ethnic bias in its approach, conceptualisation and theoretical conclusions. At present, in addition to nationally determined ethnic bias, scholars must beware of "system bias", that is consciously or unconsciously basing their criteria of judgement on the political and ideological system beyond national borders, also - and above all - when the approach is to be a cross-national, comparative one.

In its studies on the objectives of learning and education in "capitalist systems", the Marxist science of comparative education, for example, takes as its point of departure Lenin's theory of classes. It correlates the stated instructional objectives on which school study plans are based with the class strucure of society, of which those objectives are considered a reflection. Contrarily, however, the aims currently valid in the socialist system are in no way subjected to a sociological analysis. This is due to the presupposed and untested assumption that the problem does not arise at all in the socialist society, since that society has no classes in the Marxist-Leninist sense of the term.

It would undoubtedly be a mistake, then, for a cross-national comparative study on the relations between societal structure and the effective or intended aims of education in the curriculum to be satisfied with this assumption as dictated by

the system and to dispense with its own evaluation. Contrarily, system bias of an opposite sort would occur if the system of objectives and values to be found in one's own society and its educational system, together with its sociological conditions were to be taken without more ado as the basis for comparison. To continue with the same example, there would be little sense in embarking on a critical ideological and sociological analysis of Soviet Russian curricula and text-books following the sociological model of "middle-class" society and the educational objectives embodied in it and manifest, e.g. American school curricula. The most important elements would probably not even come within the scope of such an analysis.

A further example: it is one of the tasks of cross-national comparative curriculum research to ascertain what part the stated curricula or syllabus documents actually play in the educational process. This problem has clearly not yet been adequately considered even in curriculum research limited to a particular educational system. We do know nevertheless, although to an inadequate degree, that the degree of effective compulsion in syllabuses, directives and similar curricular documents varies greatly in the different educational systems. The teacher is in no case a simple executor of stated curricular objectives; however, the extent to which a relative homogeneity can be achieved in the application of desired objectives depends to a high degree on the general amount of obligation imposed. In the analysis and evaluation of foreign educational systems the mistake is often made of transferring to the foreign system the degree of relevance of prescribed curricula for teaching practice which prevails in one's own system, whether it is relatively high or low. Here we are presented with a different example of national- or system-centred bias. We need not stress the fatal consequences of such a misconception for the cognitive value of comparative studies.

Finally, a third example, directly relevant in practice:

in the process of international co-operation for curriculum development the problem also arises of adapting foreign curricula for certain subjects or age groups. It is in itself noteworthy that both those who take over these programmes and the original authors work from the assumption - one which until recently was by no means widely accepted - that a translation of individual curricula from one school system to another is (a) theoretically possible, (b) educationally advisable, and (c) technically practicable (the last point in connection with audio-visual aids for teaching and learning). In contrast to the transfers of curricula from one country to another which have often occurred in the past, with the extreme case of a new orientation imposed by compulsion on the whole curricular framework (as, for example, in Japan and Eastern Europe after 1945), in these new attempts at adaptation a voluntary and co-operative process on a scientific foundation is involved. It is probable that mainly natural science curricula will be chosen for this, but that the adaptation of programmes for "compensatory education", on the other hand, will encounter strong objections. It is not possible to eliminate ethnic and system bias in this area since they are an integral part of the societal and educational fabric, as of the intended behavioural patterns. These fundamental problems should, therefore, not be overlooked in enthusiasm for the brilliant technical quality of the products to be adapted. It gives food for thought that even the research group concerned with the adaptation of an American natural science curriculum for primary schools in the Federal Republic of Germany finally decided to develop its own curriculum for natural science because, secondary problems apart, the stated objectives of the adapted curriculum seemed to the members of the group to require modification (Tütken, 1971). Curriculum reform can utilise the adaptation of foreign curricula only to a limited extent.

The Necessity and Difficulty of a Cross-National Comparative Curriculum Concept

As stated in the introduction, since the last decade the curriculum problem has taken on a central significance for present-day theory and educational policy, a significance that will increase in the future. As was shown by the previously mentioned study by U. Springer (1969) on the planning and reform of curricula at secondary level in eleven countries, much material may be gathered in a conventional way (by the examination of written documents or by interviews with people in official positions) on the subject of basic motives, planning procedures, practical implementation and the new elements in the curriculum. As is well known, a counterpart to this study exists in the already completed and on-going projects of the IEA, within whose frame of reference the curriculum problem plays an important role. It seems too early as yet to undertake a comparison of the results of both methods in the light of the knowledge gained and the validity of the findings in relation to the curriculum problem, although such a comparison could bring some light to bear on the problem of method in comparative education.

Robinsohn (1969) sees the path from an "analysis of the general (cross-cultural) realm of curriculum development" to a "conceptual scheme" which for its part should be a "condition for all theoretically-founded work on curriculum", as being the specific contribution of the comparative method to curriculum theory. However, the three classes of curriculum variables and four levels of curriculum decisions which he distinguishes are much more deductive than comparative-historical in character. This in no way impairs their analytic and heuristic value, but a clear examination should be made as to the way in which this outline may be applied to widely differing educational systems, or more precisely, to educational systems in divergent social and political order.

An overall view gained by comparative study of the motives,

forces, conditions and results of curriculum reform in different educational systems need not necessarily lead to a *general* concept of curriculum development in order to be scientifically valid and worthwhile. Comparative education has so far considered it as much its task to discover the *peculiarities* of pedagogical theories, measures, forms, etc., in a socio-cultural system, as to arrive at *generalisations* which facilitate the general and systematic construction of theories. Thus curriculum research presents no new methodological problem in principle. Nevertheless, thanks to the complexity of its subject matter, which is at the point of intersection of cultural and political value systems, socio-economic changes, scientific dynamics, and innovations in educational practice (with relatively persistent traditional patterns), curriculum research is today opening up the most gratifying, thougn perhaps also the most difficult, field of study in comparative education.

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Comparative Education Methodology of the International Association for the Evaluation of Educational Achievement (IEA)

Richard Noonan

The idea of a multi-national questionnaire survey of education extends deep into the history of comparative education, the first such survey having been proposed at least as early as 1816 (Fraser, 1964). Jullien then sought to improve education in France by examining the evidence that could be provided by a survey of educational practice in other countries. Today the motivation to carry out such multi-national surveys is, in part, the same. Such surveys can enable educators and educational decision-makers "to benefit from the educational experiences of other countries" (Husén 1967, Vol.1, p.14), often with very different educational systems. Also they can "help in the identification and assessment of the relative importance of ... such factors as school organisation of curriculum..." on education (Husén 1967, Vol.1, p.14). Thus, behind the IEA surveys lie the twin motivations - the utilitarian "educational borrowing" and the analytic "social science explanation" - which historically have had important influences on the development of comparative education (Noah and Eckstein 1969, pp.3-82).

In practice it is difficult to distinguish between the utilitarian and the analytical motivations. Questions arising from either motivation are subject to the same comparative methods of treatment - methods which are distinguished by their self-conscious attempt to become more precise, systematic, and rigorous in using survey techniques. Here we will attempt to describe, with a brief and too simple example, this comparative methodology of the IEA.

The conceptualisation of problems and solutions is a consuming task in almost any kind of research, but the attempt to quantify the influences on education and the outcomes of the educational

process presents at once unique possibilities and difficulties. These can be illustrated with an example based in part on the data from the IEA mathematics study and in part on the analysis strategy of the present IEA study.

Let us begin with a question of the ways in which the curriculum affects the school learning of children. In setting up the mathematics study a large number of variables, regarded as being important influences on school learning, were selected. This selection process was based on a number of "hypotheses", some written, many unwritten, which the researchers involved in the project had. Those which could be operationalised using questionnaire survey methods were formulated as items in questionnaires given to students, teachers and school headmasters (Husén 1967, Vol.1, pp.126-129). Others, which upon consideration could not be operationalised, had to be dropped. The operational definition of school learning was a battery of affective scales and a cognitive test of mathematics achievement. In this example we will focus on cognitive achievement in the average grade level for 13-year-olds.

The operationalisation of achievement allows unique and important statements to be made about the educational systems involved in the study. However, the mathematics curriculum differs greatly from country to country and possibly among different groups of students in the same country. Thus it was necessary to obtain from each country a statement of its objectives in mathematics instruction. The test which eventually emerged from a consideration of these national statements attempted to represent, in a common set of instruments, the field of school mathematics as a whole rather than a series of unique tests with high curricular validity for each individual country. In fact, there did appear to be a large body of curriculum content which was common to all countries involved (Husén 1967, Vol.1., pp.76-86).

The administration of these questionnaires and test instruments to a probability sample of students as well as to their school headmasters and teachers enables generalisations to be drawn about the population of students as a whole. Appropriate

statistical techniques can be applied to test hypothesised relationships among the variables measured (Blalock, 1968; Kerlinger, 1965).

The methodological strategy uses the notion of the testing of a hypothesised model. The term "model" is used here as a logically consistent set of hypothesised causal relationships among a set of variables, at least some of which have been measured. (The term *causal* is used in the full awareness that in some circles it is heresy. By way of legitimising my use of the term, I can refer to Robert Blalock, 1964.) A model may be hypothesised which involves variables for which no data are available. Then the model will not be completely tested until later research has gathered further evidence. A model hypnothesises *causal* relationships, but of course what are tested are merely the statistical *associations* among the variables that appear in the data. These statistical associations which eventually lead to the confirmation or disconfirmation of a model may be "zero order" associations, i.e. where no variables have been statistically "controlled". Or they may be "higher order"associations, i.e. where some variable or variables have been statistically "controlled". It is the ability to "control" the influence of the selceted variables which enables the discarding of unacceptable models.

The process of developing a model is partly conceptual and partly empirical. That is, to some extent a researcher must move back and forth between the data and the model, developing the model conceptually, testing it empirically, modifying and building, testing again, etc. In this way a model grows, i.e. new causal relationships are hypothesised by a conceptual process. Then it is tested empirically.

To some extent this way of presenting the picture is idealised. Sometimes a researcher will quite self-consciously move back and forth from theory to data. Sometimes, however, an "educationalist" (or social scientist) will concentrate on one of the two poles. There is another reason why the picture is idealised. It is not always the case that each little piece of evidence is

"a building block to be added to the theoretical structure", which grows and grows endlessly, reaching new heights in explanatory or predictive power - not in the physical sciences, not in the social sciences, presumably not in "educational science". Instead, from time to time, even though all the evidence, old and new, is able to confirm an increasingly elaborate theoretical structure, an entirely new conceptual framework or *paradigm* emerges and eventually completely obviates the old theoretical structure. The result is not merely an incremental change but a scientific revolution. That, too, must be included in any balanced picture of progress in science (Kuhn, 1962).

Returning to the example, let us construct a very simple but illustrative model relating the curriculum and the outcomes of schooling. We can begin by conceptualising the problem as follows: Someone, somewhere, decides what shall be taught in the schools. Teachers are educated and trained, and with their knowledge and teaching skills provide opportunities for children to learn something. In some countries it is a central authority which decides what shall be taught in the schools. In others it is a local authority or even the incividual classroom teacher who decides.

In this simple picture the interesting variables appear to be:

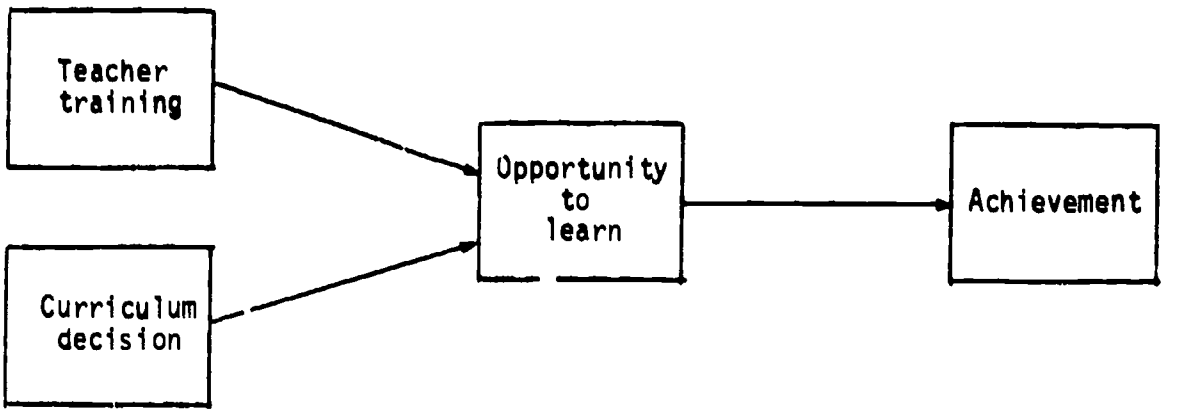
1. who decides the (official) curriculum;
2. quality of teacher training;
3. students' opportunities to learn (i.e. what is actually presented to them; and
4. students' achievement.

The curriculum decision itself can have no *direct* causal effect on what students learn. Its effect operates through the classroom experiences provided by the teacher. These experiences, if they are carefully based on the official curriculum, can provide students with opportunities for learning what curriculum makers have decided to emphasise. There are, of course, other influences on the teachers' classroom behaviours. One of these is the training of the teacher. Again, however, this has no direct effect on what students learn. Its effect is mediated

through what goes on in the classroom, especially through the learning opportunities they are presented with in the classroom or elsewhere. Thus the model developed here can be represented as in

FIGURE 1

A Model of the Influence of the Curriculum on Achievement



We have very inadequate measures of most variables. There are different qualities of teachers and this difference is partly a reflection of their training. But there must be very many factors to take into account, and no simple measure can possibly capture more than a small portion of the real variability of what we mean by quality of teacher training. In this example, for simplicity, we will use *number of years of training of teachers* as our indicator. (Since the task has been to describe the comparative education methodology of the IEA rather than the statistical methodology, no data analysis at all has been done for this paper. Thus, where composite indicators and multivariate analysis would normally be used, single indicators and bivariate analyses which have already been published have been used.) Our indicator of what students are actually presented with in the classroom, or *opportunity to learn*, is the teachers' ratings of the proportion of their students taking the IEA test who have

had the opportunity to learn the material covered by each item on the test. Our indicator of achievement, as noted above, is a test of mathematics achievement. We will select three different countries in which to examine the evidence - Sweden, where the curriculum is centrally decided, the USA, where the curriculum is generally left to the local or school authorities, and England, where the curriculum is generally left to the individual teacher to decide. To test the model adequately would require the calculation of a series of partial correlations or regression coefficients, but here we use only zero-order correlations. Table 1 presents the evidence.

TABLE 1

The Evidence for Three Countries

Statistics	*Country*		
	Sweden	*USA*	*England*
1. Correlation of "opportunity to learn" with achievement	Low (.04)	Medium (.17)	High (.51)
2. Correlation of teacher training with achievement	Medium (.09)	Medium (.04)	High (.31)
3. Mean level of achievement	Low (15.3)	Low (17.8)	Medium (23.8)
4. Variation in achievement (Standard Deviation)	Low (10.8)	Medium (13.3)	High (18.5)
5. Mean opportunity to learn	Low (37.4)	Medium (50.9)	High (60.4)
6. Achievement relative to opportunity to learn (3÷5)	Low (.41)	Low (.35)	Low (.39)

Source: T. Husén. *International Study of Achievement in Mathematics*, Vol.2.

High, medium and *low* indicate the ranking of the three countries relative to all other countries in the study. It is seen that in England, where individual teachers decide the curriculum, the correlation between *opportunity to learn* and *achievement* is highest, while in Sweden, where the curriculum is centrally decided, the correlation is lowest. This most likely corresponds to high variation in opportunity to learn in England and low variation in Sweden.

Approximately the same pattern holds for the correlation between teacher training and achievement. Possibly the small (statistically significant) correlation in the USA is a reflection of the low quality of the indicators, i.e. although there is variation in quality of teacher training, *length* of training is not one of the more important dimensions of this variation. This may be the explanation in the case of Sweden, but it may also be that because of the centrally decided curriculum, teachers teach much the same thing regardless of their training.

Insofar as the model has been tested, it seems to hold up best in England. In the other two countries variation in teacher training and opportunity to learn appear not to have much influence on variation in achievement. This is not to say that they *cannot* have an influence; merely that the way the educational systems are organised they *do not*.

The high correlations in England of achievement with opportunity to learn and teacher training, together with wide variation in what teachers teach, would lead us to expect wide variations in what students learn. This is seen to be the case when one looks at standard deviations in achievement as shown in Table 1. That is, students fortunate enough to attend schools with better-trained teachers tend to learn more than students who attend schools with less-well-trained teachers. And the educational system is organised in such a way - i.e. curriculum decisions rest with the individual teachers - that this variation in achievement is very large. In Sweden, on the other hand, the educational system is organised in such a way - i.e. curriculum decisions are

made centrally - as to make this variation small.

The mean level of achievement appears at first glance to be possibly affected by the locus of curriculum decision-making power. Those in favour of teachers having these decision-making powers might argue that the differences in mean achievement score indicate that for teachers to have that power is a good thing. And it may well be a good thing, but the evidence shown here does not suggest it. It is seen that where there is wide variation in opportunity to learn, it has an important influence on achievement. Certainly there is fairly wide variation in opportunity to learn across the three countries involved. When cross-national comparisons are made, it is necessary to interpret opportunity to learn as a measure of the extent to which the test measures what students in a given country are taught, i.e. a measure of the curricular validity of test for the country. It should not be used as a measure of the quality or comprehensiveness of the curriculum, at least not without a more thorough study of the respective curricula. It can be seen, then, that when achievement is looked at in relation to what the students are actually taught, the locus of curriculum-making power does not seem, on the basis of this evidence, to have an impact on overall achievement.

Our conclusion, therefore, could be that countries may decide for themselves:

1. whether or not to influence the extent of variation of achievement;
2. the extent to which this variation will depend on variations in teacher training; and, as a result,
3. the extent to which variation in achievement will be associated with the kind of school a student attends.

Countries can influence this relationship by making curriculum decisions

1. centrally, so that all students have approximately the same curriculum;
2. locally, so that there exists moderate variation in curricula of different students; or

3. by the individual teacher, so that there exists wide variation in achievement which is dependent on what the teacher is able to and does present.

However, changing the locus of curriculum decision-making is not a way of raising overall achievement.

Having arrived at these conclusions, let us return briefly to comment on the route by which we came. The richness of the conclusions from so simple a model (however weak they might be from lack of depth and careful analysis) derive from the interaction of the application of social science methods and comparative methods. Mere comparison of mean levels of achievement, opportunity to learn, etc., would not be a completely barren exercise, nor would mere replication of the correlations examined. Together, however, they have yielded much more than either approach alone would have done. Replication of social science methods on data from different countries immediately invites comparative methods as a source of explanation. It is this promising combination of social science methods with comparative methods which forms the comparative education methodology of the IEA.

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PART
4
Reports of Working Groups

REPORT OF WORKING GROUP ONE:
EDUCATION

Members: Shigeo Masui (chairman), W.D. Halls (reporter)
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The group delimited the range of discussion by drawing a distinction between two main clusters of problems. The first were those internal to the ducation system, such as the repercussion of isolated or linked changes on the totality of the educational process, of which an example might be the impact of structural change on curriculum. The second cluster of problems, n the other hand, concerned the thrust of extrinsic factors to effectuate change within the educational system. The decision was made to concentrate upon the area of curriculum, in which both intrinsic and extrinsic forces were manifestly at work.

Two preliminary considerations were first treated. The first recognised the often apparent gulf between curriculum theory - however fragmentary it may be - and the practical operation of the curriculum. This was variously ascribed to the i herent conservatism in education with regard to curricular i.·ovation, or to the contextual and environmental forces which, for reasons that required elaboration, exerted less effective pressure on curricular aspects than they did, for example, on structures. It was certain, moreover, that the curricular tasks of the school were often divergently appraised by teachers, parents and students - as indeed were the overarching aims of educa:ion in general. The second preliminary conside ation, which was not treated in detail, concerned the necessity of exercising great care in the comparative use of curricular terminology.

The group then dealt with the structuring of comparative studies in relation to the curriculum and, for present purposes, decided to make an arbitrary division of its work into four general "themes".

I. The establishment of curricular goals.

II. The pattern and content of the curriculum.

III. The process of curricular change, and its constraints.

IV. The operation of the curriculum within the formal educational system, including the evaluatory process.

Two models (see Appendix A) were then considered as conceptual frameworks and adopted as useful reference points for subsequent discussion. It was agreed that in the elaboration of research problems only those should be retained which could most effectively - but not exclusively - be treated by the use of the comparative method. A provisional categorisation of such problems might be:

1. Those concerned with *theory-building*, in order to arrive at a satisfactory set of generalisations. These would largely be of an hermeneutic or interpretative nature.
2. Those, of a more evaluative kind concerned with research into the *operational effectiveness* of the curriculum as a whole.

Both such categories were melioristic, although probably the latter, more centred round practicalities, would be more so. Nevertheless, even research of apparently no immediate operational application would be equally legitimate.

The group then proceeded to discuss each of the four "themes" in turn.

I. *The Establishment of Curricular Goals*

General agreement was given to the division of goals into three sub-categories:

1. Aims (i.e. long-term, more general goals).
2. Objectives (i.e. middle-range, or intermediate goals).
3. Short-term objectives (i.e. those attainable within a short space of time in the immediate teaching situation).

Preliminary discussion was wide-ranging. It was held important to evaluate carefully the internal consistency of the three types of goals and also the connections between them. Long-term goals, for example, often bore little relationship to the other categories, particularly when these were enshrined in constitutional or other official documents. Sometimes a clash was discernable between goals that stressed human rights - non-instrumental - and those of an economic nature - instrumental. A study might also be made of the degrees of generality and specificity of goals in different educational systems, or why some such systems explicate their goals in detail, whilst others refrain from doing so. Does, in fact, the explicit statement of goals

facilitate their attainment? It was also agreed that a comparison of guidelines for the establishment of goals would be extremely useful. The disparity between educational goals and the manifest or latent general objectives of the society in which they were formulated, and the shifts in emphasis over time, were considered, as were the differing interpretations placed upon goals by the actual operational agencies. In the elaboration of specific subject curricula the danger of the subject specialist overlooking the secondary repercussions of his task were mentioned and examples were adduced of new mathematics and physics syllabuses which had tended to widen the gap between the gifted and the less-gifted student in some countries.

A grid framework (Appendix B) was drawn up as a tentative tool for the cross-national examination of goals. In the time available it was not possible to elaborate techniques for its completion. Some possible methods were

a) scrutinising of official directives, etc.,

b) questionnaires,

c) "participant observation" in the classroom situation

within the framework of interaction analysis (participant observation, it was held, would ideally have to be of a multiple nature). The dangers of subjectivity in making such a study were stressed.

Other topics for cross-national investigation were also discussed. A summary list is given below:

1. The significance or otherwise of the formulation of goals.
2. Who participates in the formulation of goals, and how is such participation effected? What consequences flow from such participation? (See Appendix B for detailed report.)
3. What values are embodied in expressed educational goals, how do they reflect cultural settings, and what are the implications of this for curriculum change?
4. How far is a convergence of curricular goals apparent, and why?

In connection with 3. above, two specific topics in the field of international education were formulated:

3a How is international understanding and co-operation stated, explicitly or implicitly, in educational goals, and what particular consideration is made for its implementation?

3b What attempts are being made (or could be made) to internationalise the content of education in the light of statements of educational goals?

In the discussion of goals an important excursus was made. A classification of research types in cross-national curriculum research was formulated as follows:

a) informational, e.g. correlational studies,

b) explanatory, both of a quantitative and a qualitative nature,

c) predictive.

II. *The Pattern and Content of the Curriculum*

Four areas of research topics were identified under this rubric and were briefly discussed.

1. *New elements in the curriculum programmes for "post-industrial" societies*
   - To what extent do these new elements reflect changes in the concept of the school (its purposes, role in society, its role vis-à-vis the individual, etc.)?

   The "new elements" to be investigated might include:

   a) The introduction of technological elements into programmes of general education.

   b) Aesthetic education, sex education, etc.

2. *The content of particular subjects, and its relation to outcomes concerning behaviour, achievements and orientations of students*
   - To what extent do changes in the content of particular subjects affect these outcomes?

3. *The values reflected in curriculum content*

   a) The institutionalisation of values in subjects (e.g. "classes").
      - How are these values perceived by teachers and translated into classroom practice? What are their effects and implications in terms of individual and social competencies and orientations?

   b) An analysis of textbooks using the techniques of the International Textbook Institute or of "content analysis", as developed in the social sciences.

4. *Curriculum "imperatives" and expectations of changes in school structures*
   - What are the curriculum "imperatives" of changes in school structures, with particular reference to comprehensive education? To what extent are actual curriculum changes consonant with the "imperatives" of comprehensive education?

It was noted, moreover, that although large disparities appear to exist between the content of the curricula cross-nationally, micro-analysis may reveal a similarity in actual practice: the "public agendas" of school systems do not always correspond to their "private agendas".

III. *The Process of Curricular Change, and Its Constraints*

A wide range of problems concerned with the curricular process was proposed as follows:

1. The "mapping" of cross-national curricula changes. What changes are occurring? At what levels? In which order of precedence? In which subjects? Using which methods?
2. Which factors facilitate or impede curricular changes?
3. What is the relationship between curricular changes and structural changes? In what sequence do they occur?
4. What influence is exerted, either "vertically" or "horizontally", by curricular changes occurring at one specific level?
5. What is the effect on curricula of the quantitative explosion of the enrolment in education?
6. What is the way in which the process of implementation of curricula takes place? (See also IV. below.)

The research on the process of curricular change should be two-stage:

a) analyses of data on national levels;

b) cross-level national comparisons with a view to establishing trends (similarities and differences).

Methodological approaches would include:

a) collection of descriptive data;

b) "common basis" interpretative approach;

c) analysis and synthesis of findings;
d) comparisons and conclusions.

Data sources could include:

a) official curricular reform policies and statements;
b) plans and reports of experimental projects;
c) old and reformed official curricula;
d) interviews;
e) questionnaires;
f) "on the spot" observations;
g) the educational press.

IV. *The Operation of the Curriculum Within the Formal Educational System, Including the Evaluatory Process*

Here it was held that the overarching goal of a comparative investigation should be to develop an optimal simulation model - for example in the form of a network of "cycles" with possibilities of feedback. Using such a model curriculum planners and policy makers should be able to identify the various interdependencies that should be taken into account and which may be of use for the assessment of the effectiveness of their work. Such a model is given in Appendix C.

Suggested research topics might be:

1. The connections (dependent or independent) that exist between those responsible for curriculum change (institutes, curriculum teams, etc.) and the following institutions:
   a) educational administrations (central - federal - local)
   b) establishments within the formal educational system
      - schools
      - teacher-training institutions
      - in-service teacher-training institutions;
   c) the producers of teaching materials
      - school book publishers
      - manufacturers of teaching materials
      - TV and radio authorities (multi-media approach).

2. The determination of the influence exerted by interested social groups:
   a) directly interested groups
      - teacher organisations
      - parent organisations
      - student organisations.
   b) indirectly interested groups (pressure groups)
      - churches, political parties, other ideological minority groups
      - employers' organisations, trade unions and professional associations interested in the introduction, critical appraisal and evaluation of new curricula.
3. The determination of the extent to which teachers, parents and students have or have not participated in the formulation and implementation of curriculum change.
4. The investigation of whether and in what ways in the individual school and classroom the adoption of new curricula have been modified by the methods of instruction and teacher behaviour, either functionally or dysfunctionally.

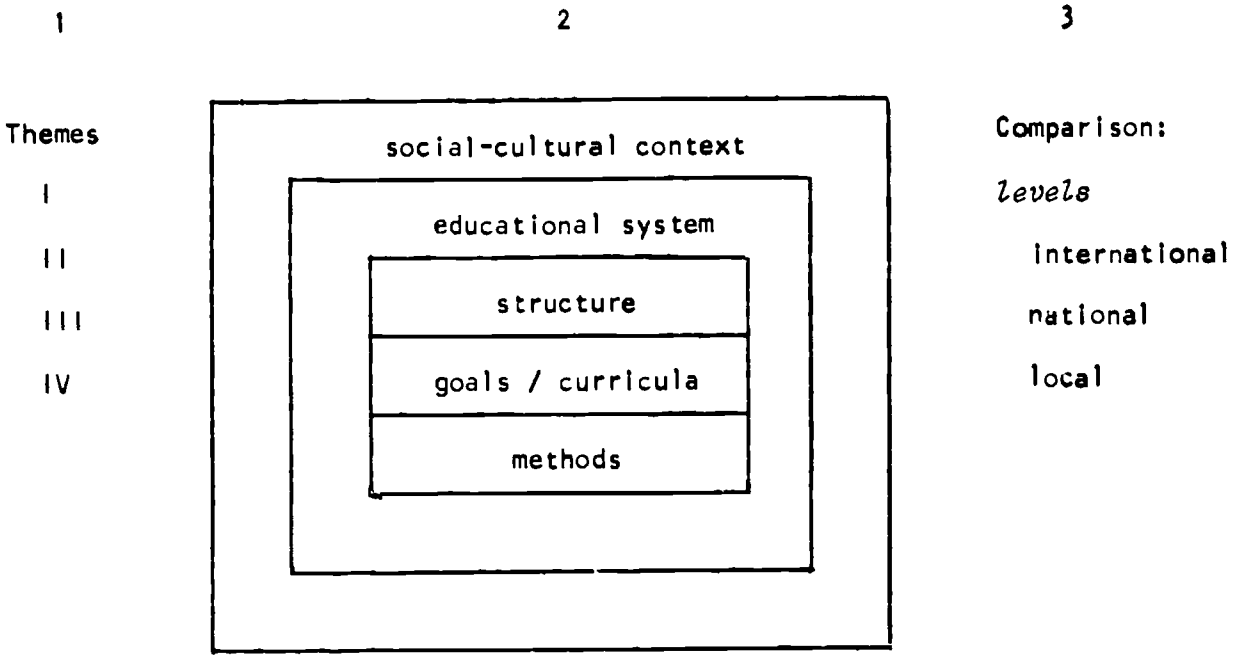
A further "theme" that might be developed, but which was not considered for lack of time, was that of "micro-analysis" of the school in relation to the curriculum.

Finally, it was suggested that a direct approach might be made to national educational systems to enquire what kind of cross-national comparative research on the curricula might be of value to them.

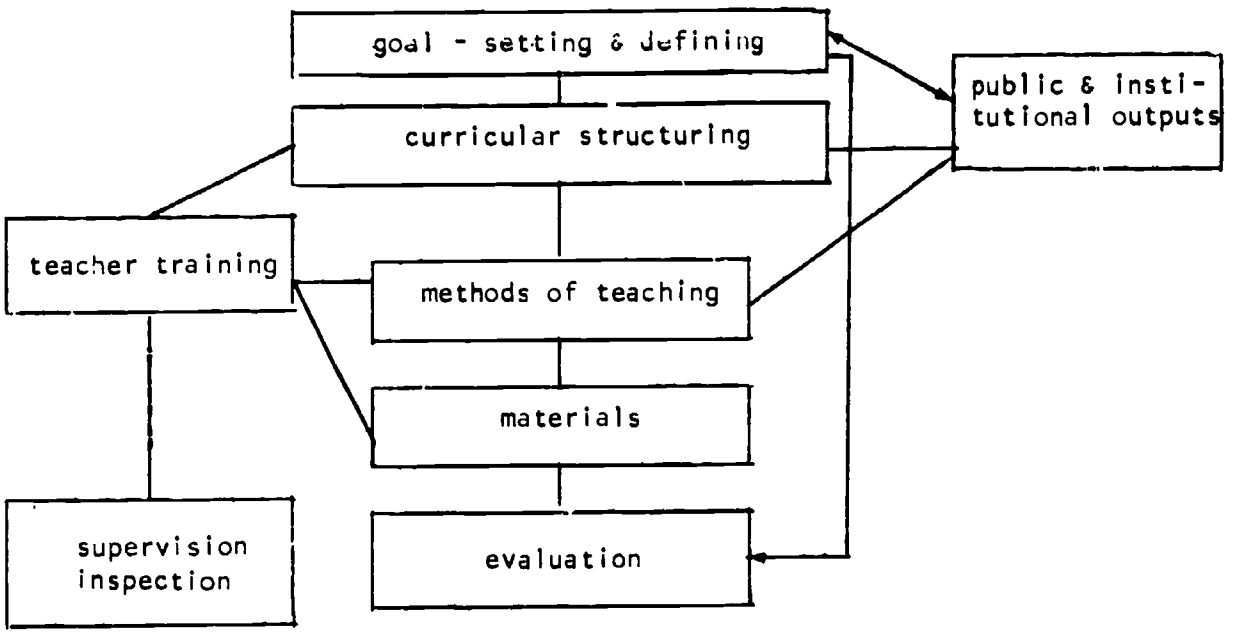
The following Appendices present the results of three sub-groups, employing different modes of approach, of the working group.

Appendix A

Curriculum: Sample overall conceptual framework - MODEL I



MODEL II



Appendix B

The Establishment of Curricular Goals

General considerations:

1. *Topic.* The topic "Who participates in the formation of curricular goals, how do they participate and what are the likely consequences of such participation?" was the topic selected from those proposed by the whole group for special consideration.

2. *Conceptual analysis.* It was recognised that distinctions should be made between, for example, the most general goals of the curriculum, "instrument" goals, the goals related to particular subjects in the curriculum and so on. The selection for study of an example from one of these categories would give specificity and precision to subsequent research. No attempt was made to establish models.

3. *Aim.* The aim of the discussion was to establish models which would facilitate the collection and analysis of data on a cross-national basis. Constant reference was made during the discussion to examples to see whether the schemes were capable of such application.

4. *Models.* A start was made on the development of three models, namely:
   a) Who are the participants in the formulation of curricular goals?
   b) Profiles of participation in the formulation of objectives.
   c) Consequences of groups' participation in goal formulation.

5. *Hypotheses.* The point at which hypotheses could be most usefully formulated was discussed briefly. It was felt that hypotheses of the type:

   If pattern of profile X of participation,
   then consequences A, B, C, D, etc.

   would be useful, and could be tested on a cross-national basis.

6. *Implementation.* It was appreciated that the evaluation of successful implementation at all levels of the school system, including individual schools, should be undertaken but time prevented any attention being paid to this.

MODEL I - *Who are the participants in the formulation of curricular goals?*

1. A distinction was drawn between governmental and non-governmental groups and agencies.
2. Some of these groups would be principally political, others economic, educational, religious and ethnic. Other categories might be added.
3. In case studies and in the light of the specific curriculum goals under consideration, agencies could be identified.

MODEL II - *Profiles of participation in the formulation of objectives*

1. A first list of the processes involved in the formulation of curricular objectives was drawn up.
2. In addition to the formal agencies of education at the national, regional and local levels, groups and agencies outside the school system participate in different ways and more or less powerfully in the formulation of goals.
3. Among these extra organisational agencies some will operate more powerfully at the local, others at the national level, the press and other media of mass communication would be included and the list could be extended very considerably. Some groups might have a formal organisation, others a much less formal organisation.
4. It was recognised that different groups would co-operate and that there would be interaction between them. The purpose of the model was to facilitate the apportionment of relative weight to the power of influence exerted by the various groups.
5. Consumers were regarded as including students (pupils), parents, employers and "the State".
6. A weighting scale of 1-5 was suggested, 1 representing no participation and X indicating that in certain formal procedures some groups may not be involved either formally or informally. In these rating procedures judgement is involved.
7. Drafting was regarded as a process of making explicit, in statement form, the formulated goals.

8. A distinction should be made between statutory and non-statutory adoption procedures and outcomes.
9. It was appreciated that beyond the adoption stage processes of implementation should be analysed.
10. It should be possible on the basis of this analysis to establish profiles of participation in objective formulation (using a rating scale 1-5 with X as not involved).
11. Some attempt was made to see whether or not these profiles for different countries could be determined empirically and represented graphically. It is evident that non-empirically determined profiles (i.e. "ideal" types) could also be constructed.
12. Some measure of centralised-decentralised emphasis might be established on the basis of this model or a formal system-extra organisational emphasis scale or a local-national scale.

MODEL III - *Consequences of groups' participation in goal formulation*

1. There was some discussion of the kinds of outcomes which might be anticipated or predicted in the light of specific profiles of participation.
2. Scales of assessability, novelty, quality, acceptability, and consistency were suggested but no attempt was made to suggest techniques of measurement.
3. Evidently prediction would involve placing prior to investigation the position along each scale of the curriculum goals in the light of the profile of participation.
4. These consequences, it was suggested, are likely to be closely related to the success of implementing any practical policy.
5. Predictions could be tested in the context of selected national systems.

MODEL I

Who are the participants in the formulation of curricular goals?

Grid Framework for the Cross-National Study of the Establishment of Goals

	Governmental			Non-Governmental		
	National	Regional	Local	National	Regional	Local
Political						
Economic						
Educational						
Religious						
Ethnic						

MODEL II

Profiles of participation in the formulation of objectives

		Initiate	Define	Formulate	Draft	Adopt
Public interest	National					
	Regional					
	Local					
Managerial 1.	National					
	Regional					
	Local					
Technical 2.	National					
	Regional					
	Local					
Extra organisations 3.	National					
	Regional					
	Local					
Consumers 4.	National					
	Regional					
	Local					

NOTES: 1 The "operators" of education.

2 e.g. teachers, the preparers of teaching resources.

3 e.g. foundations, universities.

4 e.g. parents, students, employers, "the State".

MODEL III

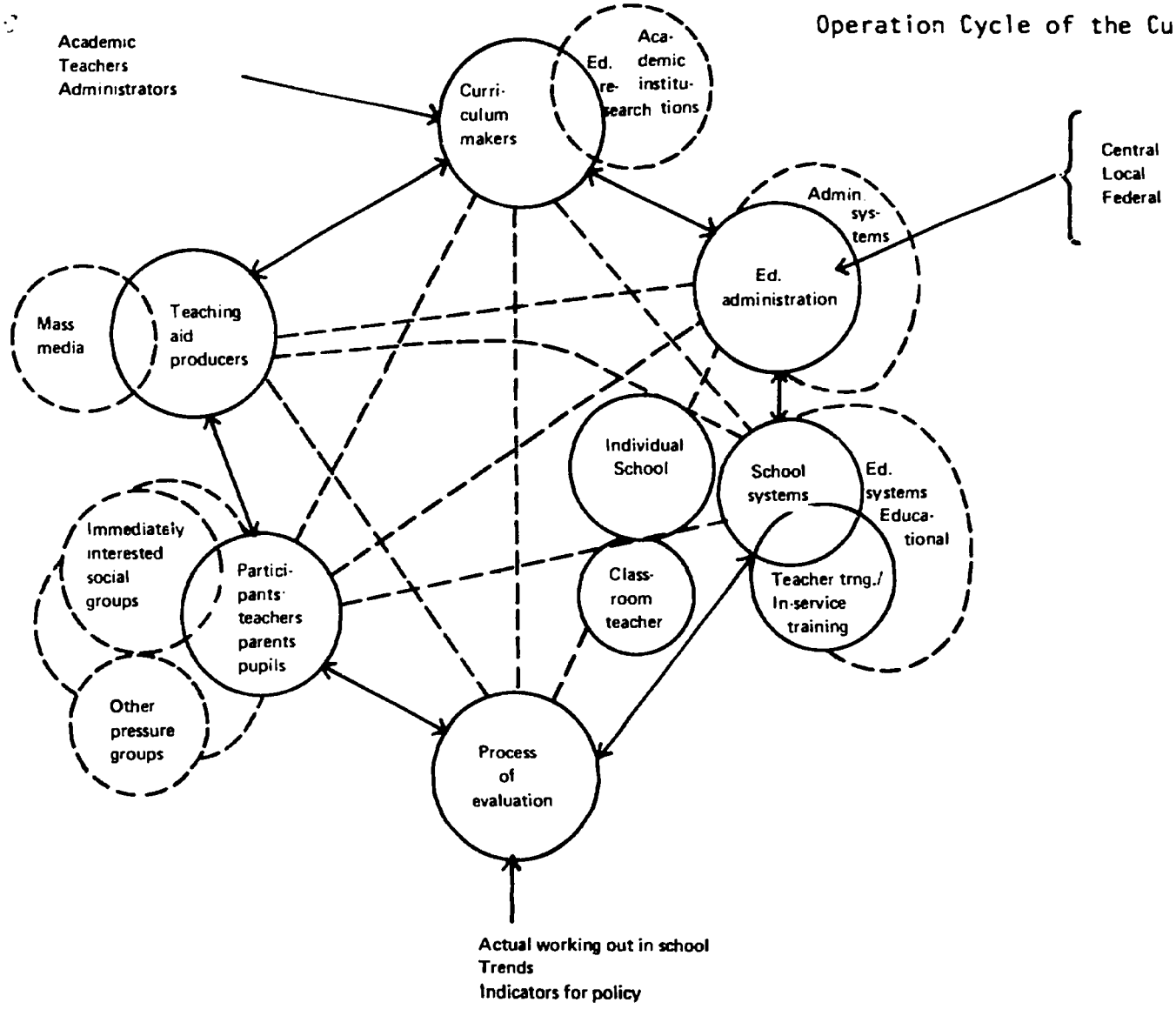
Consequences of groups' participation in goal formulation

RATING SCALES

Assessability	non-measurable	ful'y measurable
Novelty	traditional	innovative
Quality	static	dynamic
Acceptability 1.	rejection	total acceptance
Consistency 2.	none	consistent
Educ. purposes 3.	none	consistent

NOTES:
1. e.g. to teachers.
2. e.g. consistency with national goals, national traditions, or other sectors of society.
3. a development of consistency: consistency of educational purposes with the overall goals of society.

Operation Cycle of the Curriculum



REPORT OF WORKING GROUP TWO:
PSYCHOLOGY AND SOCIOLOGY

Members: C. Arnold Anderson (chairman), Max Eckstein (reporter)
Chaim Adler, Jean Beaussier, Reginald Edwards.

1. *Agenda*

The following three questions were extensively, though not exhaustively, discussed:

a) What are the major problem areas of relevance to educators and amenable to comparative research?

b) How might these be grouped and ordered so that it will be possible to estimate the desirability of research into them?

c) What research strategies and methods can be specified for particular topics or areas of investigation?

There follows a selective report on the discussions emphasising the last point c) in reference to selections from a). It is intended to illustrate in an open-ended way some possibilities and priorities for comparative research in and around only one of many suggested general themes. A more comprehensive list of topic-problems for investigation was developed in the early discussions (see Appendix). However, subsequent consideration of research strategy and tactics focussed upon the one topic of "availability and use of educational resources" (this could be identified in other terms too, such as "the distribution of education" or "democratisation" (or "equality of education"). By this focus upon one relevant and familiar topic, it was intended to highlight the possibilities and the desiderata of comparative education research methodology.

2. *General Strategy Proposed*

The particular purpose of comparative research in education was defined as follows: to examine and to establish relationships among parts of the

educational system and also between educational system phenomena and the variety of cultural influences in the world. By these activities it may inform - but not enunciate - policy. Such efforts can only be based on systematically gathered data, constantly scrutinised and improved. International organisations such as UNESCO are in a favoured position to do much of this basic work.

The main direction of comparative work for the near future was set out as follows: multi-variate analysis of the factors underlying the achievements and operations of educational systems. In this instance, "system" also refers to parts of systems, operations and dimensions (e.g. elementary schooling, the teaching of a subject, achievement in a subject at a given level, etc.), for it was submitted that at this time the best potential lies in focussing on such particulars rather than on a more holistic approach. Nevertheless, none of this work can be fruitfully done without a clearly stated, comprehensive, conceptual framework.

Some Premises of the Discussions

1. Some, if not all, of the topics discussed on the first day were familiar themes in earlier work in comparative education and for other areas and disciplines. They were defined and ordered very tentatively merely as a way of entering into deeper discussion (see Appendix).

2. Research in this area is still at a stage where data are crude, conceptualisation is simple, and the limits of investigations unspecified. The purpose of our deliberations is to do what is possible with the data as they now are, while attempting advances in each of the above. But this is not peculiar to our own field. Comparative research in other social science disciplines is in a similar state. Explicit efforts should be directed at collaboration on common problems of data and analysis in cognate fields.

3. Within each problem/topic area, there should be particular specific formulations of research tasks, some directed at school curriculum (stated and/or latent), some at the organisational context of education, some at the social/cultural context of schooling, etc.

4. Comparative educators cannot afford to ignore the potential of information, research techniques and explanatory concepts produced by cognate disciplines. At the same time, we must critically examine the empirical, quantitative, and comparative contributions of the several social science disciplines.

The limits, and even the excesses, of this mode of investigation cannot be ignored. Furthermore, while the educationist will often be required to use data and concepts of one or more of the social science disciplines, his use of them and his priorities are likely to be different. He is centrally concerned with studying educational processes and problems and with analysing the development and implementation of educational policies. While research in other fields will impinge directly on the educationist's conceptualisation of the processes which he is studying, it is the social and the intellectual responsibility of the comparativist to be aware of both sets of implications: the potential and the limits of social science research *per se*; and the effects of such contributions upon the analysis of specifically educational problems.

Some Specific Research Operations

1. *Taxonomy*

The purpose of such activity is to identify educational and social systems by common variables, to encourage more precise measurements, to highlight relationships, to foster speculation and generate hypotheses. The process will also make explicit the conceptual basis, often unexpressed, for examining educational and other phenomena. As an illustrative exercise *educational systems* might be rated and compared by the following:

Size and shape: Proportion of population of specified age groups attending educational institutions (primary/secondary/tertiary/quartenary). Pattern of educational growth in recent years.

Controls (internal and external): Extent of autonomy of individual schools (freedom from national examinations, textbook control, central ministry, etc.) Extent of secondary

school streaming (between and within schools). Existence of hierarchy of subjects. Accessibility of schooling to sub-groups in society: social, ethnic, age, ability, etc.

Resources: Relative size of teacher cadre. Qualification of teachers. Provision of textbooks, classrooms, buildings. Distance travelled to school. Complexity of institutional system.

2. *Educational and social maps of the countries and/or regions of the world*

The present state of the data, though still crude, nevertheless permits more than the single item tables contained, e.g. within UNESCO yearbooks. Tables, graphs or "maps" of relationships are possible to enhance the taxonomical enterprise and to stimulate, on the one hand, more precise measurement and, on the other, new indicators and new hypothesised relationships. For example, by relating socio-economic status of parents to the distribution by socio-economic origin of university students, one provides a good measure of the distribution of educational opportunity for countries. It would describe access to advanced schooling, permit ranking of countries, and encourage such questions as, what are the correlates of different extents of educational opportunity? These correlates might then be drawn from within the education system (organisation, teacher training, teaching methods, curriculum, etc.) or from the broader social system (political ideology, social structure, family structure, etc.).

While computer technology now permits the correlational study of large numbers of factors/variables, indiscriminate correlations should be avoided and variables chosen in the light of some stated theory, model, or set of constructs. However, it is with the help of the new technology that we are able to take a big step forward in handling large quantities of data, and in taking an ecological view of education. "Map-making" may be regarded as the comparative educator's effort to chart the dynamics of education in society.

3. *Replication studies*

The possibilities of replicating in another country a significant study completed in one nation are considerable. One among many possible

suggestions was a replication of the Arthur Jensen work in Israel. If similar results are found, the conclusions are strengthened. If the results are different, alternative hypotheses may be generated and subjected to comparative testing or further replications on an improved basis.

4. *Multi-factor models*

Much confusion is often caused by the mistaken interpretation of such terms as "independent" or "dependent" (referring to variables) as anything other than labels useful for a particular, limited research task. Through inventing and testing empirically various selected relationships without consistently viewing some variables as dependent (or independent), effort might be directed to creating more and more complex and sophisticated models of education in society by testing parts of a hypothesised model.

The conceptual framework of the IEA study as it has developed over time provides a useful example of movement from a fairly simple causal model which ignores feedback and interactive relationships among predictor variables to a sophisticated multi-causal interrelational model. Another fruitful example is the Coleman Report, *Equality of Educational Opportunity* (1966), which presents a wealth of data within a particular conceptual framework. However, subsequent analysis has gone far beyond the original work using the same data.

5. *Conceptual clarification of performance criteria*

At the same time as efforts are directed at sharpening measurement, refining indicators and asserting and seeking relationships, conceptual analysis remains crucial in two ways. First, it is essential for both pre- and post-facto clarifications and evaluation. Second, it is necessary as a means of dealing with the normative tendencies of any research. Variables and indicators to represent them are not chosen arbitrarily but as a result of what is available and what appears logically and ideologically relevant. But, for example, achievement in a particular test is only one criterion of school success, and the host of even less easily measurable criteria of the school system's success should not be ignored. Attention should be given to such success criteria as, for example, mental

health, job success and satisfaction, family stability, etc. related to various dimensions of schooling.

6. *School-system outputs*

Attention needs to be given to the fact that school systems do in fact successfully achieve certain common goals such as literacy, numeracy, and socialisation. By achieving sharper indexes of these, it would be possible to measure the relative effects of schooling across classes within nations and compare the within-nation variations in terms of the national (i.e. system) characteristics. This would shed some light on the question, to what extent the school system is necessary or sufficient to achieve particular results. From the original conception of society as teacher, then, it would be possible to specify some of the mechanisms by which society educates and the extent to which school and other sectors of society contribute to this process.

Among the particular possibilities for research, the following themes seem promising:

a) The relation between expansion of education and the several rates and directions of growth, and such phenomena as political stability, economic growth, social order, etc.

b) The relation between expressed objectives and actual performance of educational systems and the factors mediating between them.

c) The particular conditions under which crucial phases of educational development are successfully achieved.

d) The capacity of educational technology to reduce differences in achievement among groups of learners.

e) How can prediction of educational/social developments and problems be achieved by using cross-temporal indicators? (Given that cross-temporal correlations tend to be higher than cross-sectional correlational studies, the new quantitative approach in the discipline of history appears to have special relevance to studies in comparative education. Attention needs to be given to the possibilities of using historical techniques in comparative education studies.)

f) What are the individual and societal benefits of education and how are they in opposition to one another? What are the tensions between them?

7. *Explaining variation in consumption of education*

There is a need to study high and low consumers of various types of education and to identify those factors, inside and outside the schools, which account for differences in consumption. This would involve employing a variety of levels of analysis and a variety of categories for aggregation (units of comparison). One approach, already suggested in reference to several topics, is to classify people by some sub-group affiliation (economic level, race, religion) and relate this to school achievement or attendance, irrespective of nation. Alternatively, along the same line of thinking, studies might be mounted of the response of a single cultural group to education in different settings (e.g. the Chinese in the USA, Canada, Caribbean) *and* of several different minorities in the same settings. Another alternative is to look at high and low consumers within specified groups (nations, social classes, regions, ethnic groups) and examine their characteristics (e.g. family structure, attitudes towards education) and the origins of such characteristics.

Each of these suggestions is part of the search for patterns of relationship at the micro as well as the macro level. They also represent two important methodological aspects, both intrinsic to the illumination of such relationships: alternating between the conceptualisation of a given variable as independent and dependent, and alternating between the study of "normal" cases (on the regression line) and "deviant" cases (off the regression line).

Appendix

Here follows an incomplete, tentative and preliminary list of problem-topics in which education interacts with social phenomena of various kinds and which we considered to be amenable to comparative inquiry.

N.B. Only one topic in the economics of education is included, since it was not included in the charge to any of the working groups. However, this appears

to be the fastest growing area in which a particular disciplinary approach is directed at selected dimensions of education.

I. *Democratisation*, the extension and equalisation of educational opportunity:

1. Ecumenicism versus separatism: differences in educational policy and practice as between those systems (or sub-systems) adopting a comprehensive heterogeneous approach and those emphasising sub-group unique characteristics (integrationist versus segregationist policies).
2. Conditions influencing the effectiveness of educational systems: effects of input.
3. Closed and open educational systems / closed and open schools.
4. Education and reduction of distance between parts of society including vertical mobility.
5. Social status and the opportunity to obtain education of various types: the controversy over minimum versus maximum standards and the implications of alternative policies.
6. The relationship between compensatory educational policies and school practices (organisation, curriculum, teaching methodology) and/or social, economic or other developments.
7. Welfare and education.
8. Internal participation (by teachers, pupils and parents) in decisions.
9. Education as investment: What is invested for whom, resulting in what returns?
10. Education as an accomplishment.

. *Control*, decision making and administration (with special reference to educational growth and development):

1. Transplantation of educational systems.
2. The changing role of teachers, their power and status, under conditions of educational change, e.g. effects on teachers of educational expansion; effects on education of changes in the status of teachers.

3. Ecological or system effects, e.g. the relation between various innovations and different styles of decision-making and/or administrative organisations.
4. Political attitudes and social status.
5. Participation in educational decisions: teacher power as a factor in societal decisions.
6. Internal participation (by teachers and pupils) in decisions.
7. Planning.
8. Interface between levels of educational system.

III. *Content* of education (cognitive and attitudinal values):

1. Non-formal education / lifelong education.
2. Curriculum: the relative contribution of instructional content (and variations in curricula) to the knowledge and attitudes of adults or alternatively, do curricula have any causal weight, and if so, what are the "weights" of different curricula?
3. What light does comparative education throw on what curriculum to to whom?
4. Teacher training: do the observable differences in the content, style, methods, organisation, etc. of teacher preparation relate to any differences in output (i.e. teacher styles, efficiency, status, etc.)?

IV. *Methodological* strategies for comparative research:

1. Natural order or taxonomy of educational systems.
2. Input-output models, e.g. conditions of effectiveness of educational system.
3. "National character" and sub-national characteristics as residual.
4. System analysis.
5. Education and social indicators.

REPORT OF WORKING GROUP THREE:
COMPARATIVE RESEARCH ON POLITICS AND EDUCATION

Members: Saul B. Robinsohn (chairman), Robert F. Lawson (reporter)
Benjamin R. Barber, Léon Bielas, Philip Foster, Joseph Katz,
Richard Noonan, Gerald H. Read, John Van de Graaff.

The initial attempt of the working group to delineate substantive topics led to an agreement on three major fields of investigation, two of them further sub-divided.

A. Political Culture and Education
   1. Political socialisation
   2. Educational recruitment to political leadership
   3. Political activism.

B. Educational Policy Decision
   1. Communication processes and linkages within an educational system
   2. Communication processes and linkages between and among social sub-systems which affect the politics of education.

C. International and Cross-National Influences Affecting Education

Each of these fields was then further developed by deriving instances of important questions in each field area requiring attention and amenable to investigation through the methods of comparative education. In the course of developing these concrete research proposals, the group spent considerable time dealing with a number of important methodological problems related to comparative research in education and politics, among them the prejudicial effect of different social science models borrowed for comparative education research, e.g. the economic model versus the sociological.

A. *Political Culture and Education*

For the first general field several dimensional axes were identified, i.e. effect or non-effect of schooling, schooling vs. education, civic participation vs. political activism, developed vs. developing countries, education vs. indoctrination. These sets of terms refer to a continuum of some sort, which requires further research. The terms themselves, as used here, are highly tentative,

merely serving to identify the axis of concern.

Particularly in the case of "education vs. indoctrination" the terms present immediate difficulty. The use of these terms, even by those who specifically attempt clarification, is extremely diverse (e.g. the term "élite" has very different implications in different countries, "indoctrination" often turns out to be the *other* country's civic education, etc.). Without attempting adequate definitions we would point out that any prescribed or premature closure on conclusions, limitation of available information, or psychological coercion in enquiry would indicate indoctrination rather than education. Possible differences in the affective, behavioural, and cognitive areas of political education in regard to this question may be speculated, but they suggest the substance of research. We are dealing here with possible frameworks of research.

From these dimensions, a set of general variables was determined:

Independent: instructional
extra-curricular

Dependent: political attitudes
political behaviour

Finally, two concrete questions were formulated:

1. What are the attitudinal and/or behavioural effects of alternative measures of civic and political education?
2. How, and to what extent, does formal education (including structure, content, and social interaction) function as a prerequisite for access to political leadership?

B. *Educational Policy Decision*

For the second general field the instances were derived in straightforward question form:

1 Where does conversion into educational action take place?

2 Where and how does allocation of resources and values take place - what kind of determinants or confluence of determinants?

3. How do reforms in education come into being (major changes from "syndromes" of facts, forces)?

4. In what way are decisions influenced through participation within the educational system?

5. Curriculum: How is consensus established?

C. *International and Cross-National Influences Affecting Education*

For the third general field the instances were derived as topical statements:

1. International textbook comparison and revision

2. Youth culture as an international phenomenon

3. Polytechnical education as an international trend

4. Impact on national educational policy of international developments

5. Influence of international organisations

6. Viability and persistence of national characteristics

7. Educational colonialism through hardware (i.e. through the control of educational technology, communications media, etc.)

The above description represents a general consensus of the group regarding a desirable development of the topics towards feasible research. The group then proceeded to illustrate the three fields outlined above by proposing examples for each of them. In each case, a hypothetical formulation of the problem is followed by an exposition of the approach to be used.

A. *Studies in Political Culture and Education*

Example 1: A research strategy for investigating relationships between education, attitudinal characteristics, and political behaviour in and across "democratic" political regimes.

General objectives: To develop a strategy that permits a more sophisticated and politically salient explanation of relationships between educational factors and political behaviour, by treating behaviour as a function of psychological attitudes and types of democratic regime. The general hypothesis underlying the strategy is that whatever effect education may have on attitudes and behaviour, behaviour will be meaningful and interpretable only with reference to type of regime.

Indicators for key factor dimensions:

- Education factors: an aggregate scale measuring an "indoctrination ... education" spectrum or an "authoritarian ... democratic" spectrum might be identified with such indicators as group interaction (uni-directional or reciprocal), syllabus rigidity (prescriptive or open), structure of school authority (hierarchic or egalitarian), breadth of curriculum (exclusive or pluralistic).

- Attitude factors: a very general scale measuring a "healthy personality type" might be aggregated from such diverse indicators as these (though here the individual scales may be utilised alone or in smaller dimensions):

  authority (e.g. Adorno F-scales)
  anomie
  innovation
  sexual maturity
  cognitive differentiation
  motivation (impulse gratification vs. purposive goals)

  The aim here is less to identify or articulate attitudes than to identify personality structures in terms of attitudes.

- Regime factors: three groups of indicators constituting three types of democracy are suggested here, but the individual indicators may be grouped and aggregated in other ways as well.

  Direct democracy:
    type of representation
    electoral participation
    frequency of elections
    accessibility of government
    size of governmental units (decentralisation)

  Liberal-pluralist democracy:
    number of parties
    constitutional liberties enumerated
    independence of legal system
    independence of press
    number of voluntary associations
    demographic mobility

Egalitarian democracy:
income differential
social services
employment opportunity

- Political behaviour: factors taken into account include political activism (vs. isolation/anomie), political innovativeness (vs. status quo), within-regime activity (vs. outside/ against-regime, i.e. revolutionary activity). But for purposes of this study, behaviour categories would be drawn from concrete behaviour of research subjects in specific political regimes.

Research process: Several democratic regimes (e.g. the United States, England, Switzerland and France) representing different types of democracy would be selected: a comparable sample would be chosen from similar age groups (e.g. 18-year-olds) and school categories (e.g. high school, *Oberschule*, etc.). The sample would intentionally be chosen to represent concrete types of political behaviour - i.e. radical revolutionary, within-regime political activist, politically active conservative, political apathetic - but may include a randomly chosen group as a control on these *ad hoc* behaviour categories.

Data could now be assembled through personality and attitudinal testing, investigation of school history and present school structure, and evaluation of democratic regime type.

The operations and correlations that can be performed with the data are manifold and fruitful; they include:

1. Rough correlations between aggregated educational and attitudinal data (evaluating the effect of educational factors on general attitude).
2. Holding educational data fixed as an aggregate, breaking down attitudinal aggregates into individual scales (evaluating aggregate educational effects on different attitudinal factors).
3. Holding attitudinal data in the aggregate, but breaking down educationa factors into individual indicators (evaluating specific educational inputs).
4. Political behaviour categories subsumed under attitudinal categories precipitating a much more sophisticated classification of political behaviour (e.g. authoritarian sexually immature activist, or stable mature revolutionary, etc.).

5. These broader categories may now be correlated with regime indicators (permitting evaluation of the relationship between types of democracy and types of behaviour, given different possible attitudes).

6. The same political behaviour categories may now be related back to educational factors as in 1, 2 and 3 (thus further elaborating the role of regime type and educational institution in modifying attitudes when they are translated into behaviour).

Example 2:

A significant problem, apparent in a wide spectrum of nation states (whether these are differentiated in terms of level of economic development or political style), concerns *relations* between leading functional cadres. (In this context the term "cadre" is preferable to "élite" since the latter is an ideologically loaded concept and difficult to define.) Assuming a pluralist view of multiple cadres in all nations, it would appear that a particularly crucial area relates to convergence or divergence between "political managers" and leading bureaucratic or technical cadres.

Such cadres may be differentiated not only in terms of objective functions but also in terms of educational background and divergent patterns of socialisation which may result in non-congruent values and orientations. We should anticipate that in terms of both training and attitudes such cadres will be clearly demarcated in some societies, while in others there will be much greater fluidity in cadre definition, perhaps even to the extent that there are no readily observable criteria of differential membership.

Two approaches to the question are suggested. First,"definition" of cadres can be followed by an examination of characteristics in terms of prior educational background and training. Second, follow-up studies of schools can be undertaken in order to correct the impression, perhaps derived from the first procedure, that specific educational institutions overwhelmingly function as cadre-producing agencies.

Biographical data on the educational characteristics of cadres may lead to the assumption that diverse educational experience generates differences in orientations. This assumption may not be justified since orientations and values may result from "socialisation" within the role rather than from prior training.

This suggests that attitudinal data should be collected in addition to biographical material.

A further variable that must be considered is the social background of the cadres in question. In some societies there may be a high correlation between social background and educational experience while in others the relation may be much weaker. In all cases, therefore, attempts must be made to control for the differential influence of social background and training.

Clearly, under certain conditions, divergence in cadre characteristics can result in overt conflict, while in others potential conflicts can be resolved through both formal and informal mechanisms. This suggests that along with attitudinal data we must undertake studies of overt behaviour of cadres.

This first part of the study would be "descriptive" in the sense that an attempt would be made to establish cross-national differences in the level of cadre differentiations and potential or actual conflict. A second task would be to ascertain whether such variations are systematically related to other cross-national variables, viz.:

a) Degree of structural differentiation of the formal educational system (attention here must be paid to "party schools" etc. as well as to the general educational system).

b) Political structure - one party or multi-party system is only one taxonomy that can be adopted.

c) Formal "national ideology".

d) Trend of economic development and degree of structural differentiation of the economy.

B. *Studies in Educational Policy Decision*

Example 1:

General statement: Pressures from various sub-systems do not by themselves determine educational policy, but become relevant for educational decisions through a political conversion which is strongly influenced from the educational sector.

Hypothesis 1: Social arguments in favour of "equal opportunity" become effective only when the reform of the school is seen as a political change in general and when this reform tendency corresponds with increased manpower requirements, or through socio-economic change which mobilises demand for schooling.

Hypothesis 2: The influence of scientific-professional conclusions (researc results) on political decisions increases proportionately with the degree of institutionalisation of inter-system communication assuming a prior agreement on norms and goals. The effectiveness of such communication ! however, reduced when institutions of scientific consultation are integrated into the bodies of political decision.

Design: Cases of reform and non-reform in various countries should be analysed by reference to arguments which did or did not bring them about and to the factual situation behind these arguments.

Example 2:

Hypothesis: National educational systems will reform under the influence of information on foreign and international developments; reform will be inhibited through political insulation; the impact of such influence will be in direct relation to its importance to economic and technological developments, and in inverse relation to its interference with the prerogatives of the educational bureaucracy.

Design initiation for one part of the investigation: A single development of economic-technological importance could be examined in terms of the response of the various components of the educational profession and the educationally involved public.

C. *Studies in International and Cross-National Influences Affecting Education*

Example 1: International Textbook Comparison

Attempts to measure systematically the actual impact of textbooks on students' attitudes are premature at this stage and research efforts must be initially more modest in scope. Probably, at this juncture, restricted case studies should be undertaken rather than an attempt at very broad cross-national comparisons, and concentration upon texts in history and the social sciences is probably more justified.

An attempt could be made to establish a "world cognitive map" illustrating what geographical areas are concentrated on in textbooks provided for children in selected countries at roughly equivalent grade levels. Second, it would be desirable in the context of each nation to see how much these cognitive maps change over time and in response to shifts in national policy. Selected countries

will differ in the extent to which curriculum content responds rapidly in such shifts, or changes in content may in some circumstances actually precede policy reorientations.

Cross-national comparison will enable us to indicate to what extent the "cognitive map" provided in textbooks will differ. Simple content analysis will, for example, provide crude frequencies that can be directly compared. In other words, how *many* times a specific country is mentioned is in itself significant. Beyond this, however, the kind of "image" of other nations presented in textbooks is more difficult to undertake. Research here involves not only the identification of favourable or unfavourable national stereotypes but the analysis of texts in terms of their treatment of specific historical events. It is likely that the degree of "balance" in accounts of such events is directly related to national involvement in the event and to temporal proximity

Example 2:

Problem: The concept of polytechnical education has emerged as a significant factor in shaping the curricula of schools in a variety of educational systems. The way in which the concept has been applied has, however, varied from country to country. Polytechnical education may be analysed within the framework of a particular ideology or, alternatively, it may be placed within a framework of technological-industrial development. The question of the appropriate framework depends on the objective of research. In any case, the question is presented: what social, economic, political, scientific, technical and traditional factors determine the similarities and differences in the operational implementation of the concept of polytechnical education in different countries?

Hypothesis: The scientific, technical, humanistic and applicative aspects of school curricula in different countries, developed in accordance with principles of polytechnical education, are functionally related to the level of technological-industrial development of countries.

Design: For the purposes of this study an operational definition of polytechnical education would not restrict polytechnical education to vocational education, but would take into account the relationship between technical and theoretical education, and would define polytechnical learning in terms of general education and its relevance to a total educational experience.

The curricula of formal and informal educational programmes would be

examined with a view to identifying the extent of the scientific, technical, humanistic and applicative aspects present in curricula and the degree to which these correlate with the particular technological-industrial indices of a country.

The curricular indicators could take the form of the ratios of scientific to humanistic content in courses of study, the nature and extent of treatment of particular scientific topics, the proportion of time devoted to applying theoretical constructs to technical-vocational and industrial situations, the methodologies of instruction, and the character of learning situations adopted in both formal and informal institutions.

The technological-industrial indicators could be derived from indices of technological-industrial development, shown through specific national indices of energy usage, labour-intensive industry requirements, transformation and communication data, and the like.

The correlation of these indicators should make it possible to identify the extent to which the polytechnicalised curriculum is the same or different in countries of comparable technological-industrial development and ultimately to determine whether technology or ideology is the critical factor in the implementation of polytechnical education programmes.

Example 3:

Hypothesis: Youth culture is an international phenomenon negatively affecting political allegiance and not being accounted for in curriculum planning for civic education. Investigation of this hypothesis will involve the question of whether youth culture is in fact an international phenomenon, or rather the mere transference of superficial forms superimposed on the retained norms and behaviours of the national culture. In addition, does the youth culture affect political allegiance and thus the educational prerequisites of civic education?

Design: The first essential step is the definition of "youth culture". The population would include a broad sample of youth, biased in the first instance towards those youth representing conservative behaviour within the national culture, but progressing, depending on the outcome of the first instance, to populations more representative of political antagonism. The population would be nationally representative in each country case, to avoid errors such as "universality" among urban youth.

The investigation would entail two steps:

1. Qualitative investigation of youth cultures undertaken by observers with cultural understanding of the country.

2. a) Questionnaire investigation involving indirect affective questions on political allegiance.
   b) Analyses of curricula for civic education.

In the final compilation of data, there would be an attempt to recognise a pattern of youth culture involvement and political allegiance, and ultimately to relate these to the construction of curricula for, and the approach to, civic education in schools.

PART 5

International Co-operation in Comparative Education Research

International Co-operation in Comparative Education Research

Tetsuya Kobayashi

Although international co-operation is, of course, only an organisational aspect of comparative education research, it was felt that at least preliminary consideration should be given to the means of strengthening it in such an international meeting. It was also intended to take advantage of the wide range of geographical regions and institutions represented by the participants at the conference, and provide an opportunity for the participants to receive first-hand information about the status of comparative education in different parts of the world, as well as the comparative education activities of some international organisations. Naturally, any organisational questions with regard to international co-operation in research cannot be separated from those on the content of research. Therefore, it was intended that the discussion of this organisational topic should draw from and build on the preceding discussions on content, in relation to practicable future research projects. As it turned out, however, due to lack of time, the discussions only touched upon these questions, leaving much to be done in the future.

Necessity of International Co-operation in Comparative Education Research

Why is international co-operation needed? The answer to this question seems to have been taken for granted by those comparative educators who have already been co-operating among themselves beyond national boundaries. It is certainly clear to them that international co-operation is an essential prerequisite to research in comparative education, but it may be useful to

give some thought to this point before moving to other questions.

The need for international co-operation in research in comparative education stems from the implicit character of comparative education, and is also in accord with the general tendency towards internationalisation of educational problems and research. In the first place, research in comparative education must depend on data available from foreign sources. Therefore, it requires international co-operation, but in the actual situations the degree of co-operation has varied.

At one time comparative education was regarded by some outsiders and even by some comparative educators themselves as a geopolitical or imperialistic enterprise. In such instances the data collection was biased by the intention of the study, thus too often resulting in the data gathered being not only inappropriate but also misrepresented and misinterpreted. This was very unfortunate because it seriously limited the scientific validity of the research thus done. Moreover, this kind of work only produces misunderstanding and mistrust among peoples. It is hoped that contemporary comparative education has been freed from this past reputation and heritage. These remarks are therefore only a caution.

Of course, it can be said that the promotion of international understanding and co-operation is not the primary purpose of research in comparative education, but only a by-product to be expected. On the other hand, however, without proper international co-operation and understanding, any comparative studies would be seriously handicapped. Regarding the meaning of *proper*, it implies not only the technical adequacy of the methods of co-operation, but also the spirit of equality and mutual respect among peoples which should underlie the whole process of research in comparative education.

Different Forms of Co-operation in Different Types and Stages of Studies

First, it should be noted that there are several types of

studies in comparative education, which may include the following:

1. National case studies
2. National parallel studies
3. Cross-national studies
4. International studies in education
5. Studies in international education.

Here no attempt is made to define these types, or to discuss them, but simply to suggest that the range and degree of international co-operation may differ among these types, since each of them has its own characteristics with regard to the purpose and method of enquiry and the data to be collected.

In the case of national case studies the range of international co-operation may be less than in the case of cross-national or national parallel studies. The difference between the latter two may lie not so much in the range as in the degree of co-operation. This is related to the question of the stages of research, which is in turn concerned with the means of international co-operation.

Roughly speaking, research in comparative education may proceed in the following stages:

1. Identification and definition of the problem
2. Formulation of the hypothesis
3. Collection of the data
4. Analysis of the data
5. Testing of the hypothesis
6. Generalisation based on the findings.

Our question concerns the stages which require international co-operation and the form which such co-operation should take. It is often asserted that international co-operation is necessary in the data collection, but further thought makes it clear that this is not enough. The analysis of the data can be more effectively done in consultation with the persons who are most familiar with the data, that is to say those of the source country. It may go further to say that it is desirable to have such co-

operation from the beginning to the end of the research activities, i.e. from the identification of the problem to the generalisation.

In what we have described as imperialistic studies in comparative education, international co-operation was limited or negligible both in range and in degree. Even in data collection, co-operation with the source people was lacking, and much more so in other steps of research.

The means of co-operation during each stage are to be determined according to the type of research, and more specifically according to the particular research project.

Organisation for International Co-operation

Which form of organisation can best serve international co-operation in comparative education research? One way of proceeding on this question may be to examine instances of research in comparative education which have employed various means of international co-operation. To quote only a few examples from among many, there is the comparative study on moral education conducted by the Kyushu University, and the studies on educational achievement. In both cases international co-operation has been well organised throughout most or all of the research activities. They represent large-scale studies, and further examples of smaller scale and other types may be found.

In many cases organisation for international co-operation in research is of an *ad hoc* nature; that is to say, a specific kind of research requires a specific form of co-operation. On the other hand, as research projects develop in sequence, organisation takes a more permanent form as in the case of the IEA studies, where an international council has overall supervision while *ad hoc* national groups of experts co-operate for individual research projects.

This leads to the next question on the role of international organisations which exist to promote international activities in the field of education, including comparative education re-

search. The list of these organisations includes international or inter-governmental institutions such as UNESCO, the International Bureau of Education, the International Institute for Educational Planning, the Unesco Institute for Education, the Council of Europe, and the OECD, and non-governmental institutions such as the IEA, the International Association for the Advancement of Educational Research, and the World Council of Comparative Education Societies. These institutions may have affiliated national organisations, some of which may also take some international responsibilities besides their proper national functions. Each international organisation has its own functions as defined by its constitution, and the ways in which it can further international co-operation in research in comparative education must be sought in accordance with its specific function on the one hand and with the types and stages of research on the other.

The primary function of international organisations is to assist and co-ordinate research activities of national institutions and individual research workers, by organising conferences and research projects and providing information and documentation services. With regard to the latter services, the information and data on national systems of education has become much more easily accessible to the researcher. Information on research activities and their results is also available through the efforts of international organisations. Now techniques using computers are under development. There is, however, still much room for improvement and for increasing the efficiency of information exchange through international co-operation.

Some international institutions are best fitted to deal with cross-national studies, and others for international studies in education. The institutions which are engaged in actual research may thus be concerned with all stages of research, while others with a co-ordinating function may be concerned with certain steps only.

Apart from their contribution to the particular research projects in comparative education, the international organisations also have the important role of providing facilities for communication among comparative educators of the world. This is an important prerequisite for any individual project, and can be most effectively provided by the international organisations. Communication should not be limited to comparative educators. As comparative education research covers a wide area of educational problems, and as it requires interdisciplinary approaches, efforts must be made to facilitate communication between comparative educators and researchers in other fields. Professor Katz states that comparative educators have a special role to play in assisting national systems to achieve their national educational objectives within the framework of the international community. If comparative education is to be concerned with future-oriented problems, co-operation should also be sought with those who are directly engaged in the practice of education within national systems.

APPENDIX

WORKING PAPER

This meeting will attempt to assess the relative merits of different methodologies in comparative education. Its scope will be wide, ranging from problems of values, philosophy and theory to those of data collection and analysis. Its concern will be integrative; it will seek to show how the various approaches and techniques can complement each other, as well as how the various organisations and institutions employing them can plan and co-ordinate their activities more effectively.

To provide both a substantive focus and an organisational framework, the meeting will stress methodologies useful in relating societal determinants or antecedent factors to the curriculum (as a primary aspect of the educational process) and to the outcomes of that process. Methodological issues can thus be viewed concretely and illustrated with reference to specific projects. In addition to the more familiar approaches in comparative education, the meeting will analyse the utility of certain of the social sciences.

Purpose of Comparative Education

As a kind of preamble to this paper, it will be useful to give a brief statement of the aim or purpose of comparative education, which we hope can thus serve as a basis for the meeting. Comparative education aims to promote and carry out research on the educational process in its societal context throughout the world. It strives for findings which are *comparable* - that is, systematic, accurate, and valid for different nations and cultures, and which are meaningful for educational practice, in terms of relevant values, aims and objectives.

Approaches

The meeting will undertake to review the full spectrum of current approaches to comparative education, extending from the more normative, philosophical, and historical (such as the factor approach derived from Hans, Kandel and Schneider) to those which are more empirical and self-consciously scientific (the problem approach of Holmes, Noah/Eckstein, and the IEA project).

The more qualitative, historical-philosophical approaches have increasingly been challenged by those which claim to be "scientific", i.e. quantitative and empirical. Though this broad conceptual distinction, and the controversies associated with it, are undoubtedly significant, it is clearly best to regard the two poles as complementary. In this way comparative education may yet avoid the kind of bitter divisions which presently plague political science and other social science disciplines. However, developments in these fields can undoubtedly be instructive for comparative education, and will be discussed at the meeting.

Theory, Design and Organisation

1. *Problems of theory and hypothesis construction* will be examined, and attention will be paid to normative theory (values and aims or objectives; their role both in the educational process and in research). The use of deductive and inductive procedures in the development of hypotheses should be considered: are hypotheses to be induced from data, or can they be based simply on a preliminary investigation of the problem? In what ways might the processes of hypothesis formation and data analysis overlap? How can hypotheses be broken down into concepts (variables) which are in some ways empirically measurable?
2. *Research design:* Steps related to the selection of indicators, and the collection and analysis of data. Here the operational definition of concepts through the selection of valid indicators is central. Can means be found to apply the notion of validity (congruence or link between the abstract theory or concept and the empirical indicator) to the whole range of research in comparative education? The problem of reliability can usefully be considered in this context. Whether or not researchers are in a position to generate their own data, they have always to consider both the reliability and the validity of the data available and there may sometimes be an inverse relationship between the two.

   Various sources of data will be discussed, including documents, communications media, and aggregate statistics of all kinds. Among the means of generating data to be covered might be: surveys,

interviews, questionnaires and tests, content analysis, and direct observation.

Finally, considerable attention should be given to problems of statistical inference, analysis of variance, and other means of interpreting data.

3. *Planning and Organisation of Research:* How should the labour involved in the above activities best be shared among individuals, universities, research institutes, and international organisations? Among the latter, UNESCO (Paris), Unesco Institute for Education, IBE, IIEP, OECD (including CERI) and IEA should be given particular attention.

Substance of the Meeting

The meeting should focus on methodologies which are relevant for analysing the manifold relationships between the following three groups of variables:

1. Socio-economic, political, and cultural *determinants* of education (antecedent factors).
2. The educational *process* itself.
3. *Outcomes* or consequences of education, for both individuals and society.

In essence this is an input-process-output framework: it involves the assumption that the links between the enterprise of education and society, both in terms of antecedent determinants and of ensuing consequences, are important. Beyond this basic assumption, however, the framework is not intended to prejudice the substantive discussion; its primary utility is organisational, and it should facilitate an examination of ways to study education comparatively in its societal context.

This framework does not in itself go very far towards defining the substantive topics to be discussed at the meeting (beyond the purely methodological ones listed in the preceding section). As it happens, a large proportion of the prospective participants have done research on the topic of curriculum. However, it is clear that curriculum (broadly defined) is a central aspect of the educational process. Therefore it will be appropriate to take curriculum as the main *process* topic to be treated. (A further justification might be that curriculum probably has as good a claim to represent

the core of the educational process as any other topic.)

However, to balance the limitation inherent in this choice of one single topic within the educational process, we will leave the full range of determinants and outcome open for discussion. Here the initial organising principle, to be transcended by the close of the meeting, will be a selection of the social science disciplines relevant to comparative education. These will include psychology, sociology, economics, and political science.

Each participant with a competence in a social science should examine those inputs and outputs, in relation to each other and to curriculum, for which the tools of his discipline are best suited. Thus the economist might illustrate his approach through an analysis of the relationship of financial resources to the provision of auxiliary classroom equipment and to the production of skilled manpower. The political scientist could outline ways of linking the range of political attitudes and ideologies present in a society to curriculum content and to cognitive and affective achievement in civics.

These disciplinary analyses will serve as an initial basis for the detailed discussi of methodologies. Here is where the integrative aim of the meeting must be realised. Firstly, the best means, regardless of disciplines, for analysing each of the various sorts of determinants (inputs) and outcomes should be sought. Secondly, the meeting must determine to what extent the various approaches and techniques can be combined and integrated in comprehensive comparative research projects.

Organisation of the Meeting

1. *Papers.* Each participant will be expected to prepare a *brief* paper well in advance of the meeting. These will be reproduced and distributed to the participants to be read and digested as a basis for discussion. Each paper should:
   a) describe the author's overall methodological approach, in the context *either* of comparative education *or* one (or more) of the social sciences;
   b) discuss the methodological assumptions and techniques involved in the approach;
   c) show how the approach can be used to study some aspect of curriculum in its dynamic societal context. The strengths and weaknesses of the approach should be analysed; and

d) as far as possible, the paper should be based on recent original research. (Where this is not feasible, the author should indicate how he might design research on curriculum if he had the opportunity.)

The papers should be as *brief* and as *lucidly written* as possible. The importance of this cannot be overstressed, if the papers are all to be read in advance of the meeting.

Maximum length: 10 double-spaced typewritten pages. Papers which significantly exceed this are subject to editorial deletions.

Deadline: 15 June 1971, to give time for reproduction, translation and distribution in advance of the meeting.

2. *Course of the Meeting.* The first day or day-and-a-half of the five-day meeting will be devoted to discussion of the basic approaches to comparative education, with a preliminary overview of the role of the social sciences. It will be based on a selection of the papers. A means of initiating discussion of each paper would be to choose an advocate (other than the author) who would give a brief resumé of its main points and a respondent to give a short critique.

For the middle part of the week, the meeting should divide into smaller groups to permit more intensive discussion. 25 to 30 participants are expected, so three groups might be appropriate. We would like to tentatively propose that the groups be formed according to the social science disciplines, perhaps as follows:

Group 1: Psychology (perhaps including social psychology)

Group 2: Sociology

Group 3: Economics (perhaps including political science)

Each group should include representatives of the other disciplines and comparative education approaches, who would actively and explicitly play the role of constructive critics or "gadflies". Thus the methods of each discipline can be put in perspective and their utility for studying a wide variety of inputs and outputs can be analysed. Suggestions as to how this might be organised in detail, as well as volunteers for the respective role of disciplinary advocate and gadfly are very welcome.

The final part of the meeting, in plenary session, will review the reports of the group discussions and seek to tie the threads

together. All aspects of the research process - theory and hypothesis construction, research design, and international co-operation and organisation - should be reviewed. In conclusion, the recommendations adopted by the meeting should speak particularly to the third aspect: co-ordination and organisation of research projects across institutional and national borders.

3. *Bibliography*. It is hoped to include a carefully selected bibliography in the final report of the meeting. To aid us in this effort, each participant is asked to submit a brief list of items (perhaps 10 - 15) relevant to the particular points covered in his paper. Where appropriate, reference may be made in the text to particular items, by last name of author and year of publication, in parentheses.

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LIST OF SUBMITTED PAPERS

Chaim Adler	*A Sociological Perspective on Curriculum under Different Social Conditions*
C. Arnold Anderson	*Three Methodological Challenges for New Approaches in Comparative Education*
Oskar Anweiler	*Curriculum Research from the Perspective of Comparative Education*
Benjamin R. Barber	*Science, Salience and Comparative Education: Some Reflections on Social Scientific Enquiry*
Léon Bielas	*The Comparison of Systems of Education in Two Countries with Common Historical Traditions and Different Social Orders*
Reginald Edwards	*Between the Micrometer and the Divining Rod: Methodologies in Comparative Education*
W. D. Halls	*Culture and Education: The Culturalist Approach to Comparative Studies*
Brian Holmes	*Conceptual Analysis and Empirical Enquiry*
Edmund J. King	*Comparative Studies in Concerted Effort*
Tetsuya Kobayashi	*International Co-operation in Comparative Education Research*
Nathan Kravetz	*The IIEP Study on Transition: A Work in Progress*
Harold J. Noah, and Max A. Eckstein	*Defining Comparative Education: Conceptions and Operations*
Richard Noonan	*The Comparative Education Methodology of the IEA*
John Van de Graaff	*The Uses of Political Science for Comparative Education*

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